

FACTORS INFLUENCING LOW-INCOME WORKING MOTHER'S  
CHILD CARE ARRANGEMENTS UNDER DIFFERENT NEIGHBORHOOD  
AND STATE POLICY CONTEXTS

BY

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DISSERTATION

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## **ABSTRACT**

The implementation of welfare reforms following passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 has increased pressures on parents receiving public assistance to participate in the labor force even during their children's formative years. Under this context, understanding how mothers choose child care services for their young children has increased in importance. Prior research has found that the type of care used is not only associated with maternal labor force participation (Lemke, Witte, Queral, & Witt, 2000), but is an important factor in children's later cognitive outcomes (National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2002).

There have been many studies that examine the reasons why mothers choose a particular type of child care versus another. However, not many studies were conducted in a post welfare reform era and may not reflect the child care situations facing working mothers under the new policy regime. In addition, many studies have only used small samples and have not used nationally representative data sets. Further, most of the studies have concentrated on examining mothers' individual level factors' effects on their child care arrangements. The effects of mothers' neighborhood features, as well as state welfare policies, have not been well examined. As suggested by ecological model, contextual factors, such as neighborhood socio economic characteristics, as well as characteristics of state welfare policies, can influence maternal child care choices in important ways.

The current study is intended to take some useful steps in addressing the above limitations. Using an ecological model as a theoretical framework, and the Public and Contract data from the Fragile Families and Child Wellbeing (FFCW) study, I investigate how selected

mother's personal characteristics (individual level factors), neighborhood socio demographic compositions, as well as state social welfare policies influence child care arrangements of employed, predominantly low-income mothers of 3-year olds.

The result suggested that mothers in poor or immigrant neighborhoods were more likely to rely on relative care or family day care than center care; mothers who were in states with generous child care spending were more likely to use center care than relative care and family day care; and mothers in states with generous TANF eligibility are more likely to choose center care than family day care. Further, in states where child care lead agencies help parents locate child care, mothers are more likely to use center care than relative care, and in states where child care lead agencies limit the use of in-home care, mothers are more likely to use center care than family day care.

Findings from these analyses are useful in furthering our knowledge regarding the child care arrangements of working mothers. In addition to filling gaps in current knowledge, study findings are useful in informing social policies and interventions related to child care arrangements for working families, particularly by elaborating how characteristics of neighborhoods and welfare policies may affect the child care arrangements of social economically disadvantaged working mothers. The findings thus have implications for policy makers, community organizations, as well as social work practitioners to help disadvantaged working mothers balance work and family obligations in the United States. Implications for social work practice and policy are discussed.

*To my family*

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# **CHAPTER 1**

## **INTRODUCTION**

The implementation of welfare reforms following passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) fundamentally changed the way that public assistance is administered to poor children and families. Resulting Temporary Assistance to Needy Families (TANF) programs have increased pressures on mothers receiving public assistance to participate in the labor force even during their children's formative years. The resulting influx of these predominantly low-income women into the labor market has increased the need for child care, and state child care subsidy programs have emerged as one important policy response.

Under this context, understanding how working mothers choose child care services for their young children has increased in importance. Prior research has found that the type of care used is not only associated with maternal labor force participation (Lemke, Witte, Queralt, & Witt, 2000), but is an important factor in children's later cognitive outcomes (e.g., National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2002). The central goal of PRWORA welfare reforms was to increase self-sufficiency and to end dependence on government benefits. For this goal to be realized, attention must be paid to the early development and long-term advancement of children in welfare and working poor families (Fuller, Kagan, Caspary, & Gauthier, 2002).

This study examines how selected factors influence disadvantaged working mothers' child care arrangements under varying community and state policy contexts. Using data from the Fragile Families and Child Wellbeing (FFCW) study, which follows a stratified random sample of 4,898 primarily single, low-income mothers with children born between 1988 and 2000 in 20



large cities in the U.S., I investigate the extent to which work structure, family structure, neighborhood socioeconomic characteristics, and social welfare policy factors predict the type of child care the mothers use.

### **Definition of Child Care**

Child care is an umbrella term referring to any form of non-parental care that occurs on a regular basis (Huston, Chang, & Gennetian, 2002). Researchers have categorized child care in several different ways. For example, Karpilow (1999) divided child care as care by a relative such as a grandmother or aunt; in-home care by non-relatives such as a babysitter or nanny; and care in group settings such as centers and family child care homes. Care provided by a relative, care in the provider's home when caring for children from one other family in addition to the provider's own, some public recreation programs, and care for school-aged children and younger children in their own home is collectively referred to as license-exempt child care or "informal child care" (Karpilow, 1999). Unlike other providers, these providers do not need a license to provide child care.

Huston, Chang, and Gennetian (2002) classify child care types as centers, nonrelative, or relative care. A center refers to a group setting designed for the care of young children. It includes programs designed primarily for enrichment or early education (i.e., Head Start, preschools, or after-school programs), as well as settings designed primarily to provide care while parents are working. A child care center must be licensed and, therefore, is subject to some regulations regarding physical safety, ratios of caregivers to children, and the like. Center care is generally considered the most "formal" type of care, and it is usually the most expensive one for parents unless it is subsidized by public funds. Research also has found that for low-income families, center care is of higher average quality than home-based care (Chase-Lansdale, Coley,

& Li Grining, 2001). In addition, center care is associated with better cognitive and language development for young children than is home-based care (NICHD ECCRN, 2002).

Non-relative care can occur in the caregiver's home (e.g., family child care homes) or in the child's home. Parents typically pay for such care. Some such child care homes are licensed, certified, or registered; some receive training and technical assistance, but many do not. Relative care is provided by grandparents, siblings, or other relatives in the child's home or in their own homes. Parents often pay for such care, but pay levels tend to be below market rates and payment procedure often are flexible (Anderson, Ramsburg, & Scott, 2005; Huston et al., 2002).

## **CHAPTER 2**

### **POLICY BACKGROUND**

The development of policies and programs to support child care for working parents has emerged in response to changing employment and public assistance trends. Accompanying the process of industrialization and globalization, women increasingly have been encouraged to participate in the labor force, because the male dominated economic model was not able to meet the needs of the economy (Gornick & Meyers, 2003). Since World War II, more women have been accepted into the labor force, and have had more opportunities to increase their education level, and consequently have enjoyed more employment opportunities (Gornick & Meyers, 2003). The need to obtain adequate child care to realize these opportunities correspondingly has increased dramatically.

The federal role in providing child care support expanded greatly following the Family Support Act of 1988 and the Omnibus Budget Reconciliation Act of 1990. Four large programs were initiated during this period: Aid to Families with Dependent Children (AFDC) Child Care, Transitional Child Care, At-Risk Child Care, and the Child Care Development Block Grants (CCDBG). AFDC Child Care was provided to AFDC recipients who were employed or in training, while transitional Child Care was time-limited assistance for former AFDC recipients who had recently left the program. At-Risk Child Care was targeted on non-AFDC families who needed child care to work and were at risk of becoming eligible for AFDC. Finally, the CCDBG program provided funds for child care services for low income families, as well as for activities to improve the overall quality and supply of child care for all families (Meyer & Rosenbaum, 2000).

PRWORA stimulated further changes to federal child care programs. The PRWORA legislation created TANF programs, which changed the focus of public assistance to temporary financial support for impoverished parents as they searched for and began work. Each state was required to develop its own TANF program. Subject to some overarching federal requirements, TANF participants are required to maintain employment or involvement in work-related activities at least 30 hours per week (Forry, 2007). Currently, families may receive aid for a maximum of 24 consecutive months within a 60-month lifetime limit, and lifetime limits are even shorter in some states. TANF provides a monthly cash assistance benefit to eligible families. The size of the benefits is set by states, with the maximum annual benefit ranging from \$1,968 in Alabama to \$11,076 in Alaska (Urban Institute, 2002).

The work requirement that is central to the TANF program marks a significant departure from the AFDC program. Historically, mothers of children under age three were exempted from any work requirements on the assumption that mothers needed to be home with their children. The premise of TANF is that mothers, regardless of the age of their children, should work. As a result of the new emphasis on work, and the strong economy immediately following TANF passage, the welfare rolls fell dramatically as parents entered the labor force. Overall welfare rolls after TANF implementation declined from 4.4 million families in 1996 to 2.8 million families in 2008 (U.S. Department of Health and Human Services [DHHS], 2009). Consequently, the need for non-maternal child care for those affected by TANF greatly expanded.

In order to encourage work while also considering the developmental needs of children, the CCDBG in 1996 was expanded and consolidated with the welfare-related funding programs described above and became one block grant, the Child Care and Development Fund (CCDF)

(Blau & Tekin, 2001). The CCDF consists of two separate funding streams: 1) discretionary funding authorized by the CCDBG, subject to annual appropriation; and 2) an entitlement portion of mandatory and matching funds made available under Section 418 of the Social Security Act (DHHS, 2007). The CCDF assists low-income families, families receiving temporary public assistance, and those transitioning from public assistance in obtaining child care so they can work or attend training or education (National Child Care Information and Technical Assistance Center [NCCIC], 2005).

The CCDF serves children younger than 13 years old, as well as some older children with special needs. It offers child care subsidies in the form of vouchers or direct payments. In order to be eligible for CCDF subsidies, parents must be employed or in school, though the minimum number of hours required per week for such activities varies by state (NCCIC, 2005). It is a capped entitlement – not all eligible families are entitled to services. It is estimated that only 12 - 15% of eligible children are served (De Marco, 2006).

States were given substantial flexibility in establishing subsidy program rules, including income eligibility standards, family co-payment levels, and reimbursement rates for providers. States also were allowed to spend TANF funds directly for child care, and to transfer up to 30% of their TANF funds into the CCDF (NCCIC, 2005). In addition, the law mandated that at least 4% of the funds must be used for quality improvement and consumer education services. A minimum of 70% of each state's mandatory and matching child care funds must be used to provide child care assistance to families receiving welfare, families transitioning from welfare, and families at risk of becoming welfare dependent (NCCIC, 2005).

In fiscal year 2007, the federal government authorized about \$2.1 billion in CCDF Discretionary Funds, 2.9 billion for CCDF Mandatory and Matching, and \$16.5 billion for

TANF, of which 30% could be transferred to CCDF (DHHS, 2007). The majority of subsidies are distributed through vouchers that parents can use for any legal child care providers, including relatives, in-home caregivers, family child care homes, or centers. States can also contract to purchase slots in day care centers and family day care homes, and provide such slots to eligible families (Adams & Rohacek, 2002). Child care providers must meet applicable state regulations and licensing standards, which vary considerably among states. If they are legally exempt from licensing, such as relatives and babysitters, they still must meet basic health and safety standards. Such regulations are determined entirely at the state level, and often are very minimal for the more informal provider types such as families and friends. In addition, although states are allowed to impose more stringent requirements for child care services than required by CCDF, any such additional requirements must be consistent with the strong provisions of the CCDF requiring flexibility in parental choice of child care (Blau, 2000).

Family potential eligibility for child care subsidies is based on two basic criteria under state rules: family income and parental work status (Child Care Bureau, 2003). First, a family must have monthly income below the state determined income eligibility threshold for a family of that size. Most states set income eligibility limits substantially below the maximum level allowed by federal law, which is 85% of the state median income (SMI). Second, both the mother and the father (if there is a spouse present) must be either working or attending a job training or educational program. Three states additionally require the parent to work at least a minimum number of hours per week (e.g., 20 hours) to be eligible for CCDF-funded subsidies. If these two criteria are satisfied, then the mother is eligible for a child care subsidy for her children who meet the previously mentioned age or special needs criteria.

As U.S. child care subsidy policy has developed, spending on preschools and early education programs also has increased. The two most important programs in this respect are Head Start and Early Head Start, which were established in 1965 and 1994, respectively (Forry, 2007; DHHS, 2007). These are child-focused programs that serve children from birth to age five, as well as pregnant women and their families. The program goals are to increase the school readiness of young children in low-income families. By Fiscal Year 2007, federal spending on the Head Start and Early Start programs reached \$6.9 billion (DHHS, 2007).

## **CHAPTER 3**

### **THEORETICAL FRAMEWORK**

Researchers have proposed different theoretical frameworks to explain parental choice of child care, such as the “preferences-and-constraints” model (White & Klein, 2002), economically-based “rational choice” model (Casper & Smith, 2004), and “ecological model” (Pungello & Kurtz-Costez, 1999; Bronfenbrenner, 1994). This dissertation uses the “preferences-and-constraints” model and the “ecological model” as the theoretical frameworks to explain the child care choices of disadvantaged working mothers.

#### **The Preferences-and-Constraints Model of Child Care Choice**

Casper and Smith (2004) developed a “preferences-and-constraints” model for explaining parental child care choices. This model is derived from Becker’s (1981) model of household production, in which couples make simultaneous decisions about employment and household production – including fertility and child rearing—subject to their constraints (e.g., such as budget and employment schedules) and preferences. The preferences-and-constraints model assumes that parents weigh their preferences for different types of child care against both competing preferences (i.e., other goods and services they could buy if they did not purchase child care) and constraints (i.e., time and money).

For example, child care preferences can include the specific characteristics of child care programs; the desire for a provider with shared values, religion, and culture; the convenience of the time and location; or the reliability of the provider. Constraints can include factors such as budget, employment schedules, and availability of services in the surrounding environment. Trade-offs occurs among factors between preferences and constraints.



This theory can be applied to the study of parents' choices of a particular type of care over other alternative types of care. The theory predicts that in choosing one type of child care over others, parents take into account a child's need for care, including whether the parents or another relative are available to care for their child, a family's budget constraints, including family income and the cost of alternative care; the quality of care, including how well-suited the child is to care in the settings (e.g., the child's attributes, such as the child's level of maturity and responsibility), and the environment in which the care takes place (e.g., a safe neighborhood); and other parental and child preferences, including convenience and the child's particular likes and dislikes. Trade-offs occurs among these factors on the basis of the relative costs and perceived benefits attached to them and to other goods and services, resulting in the choice of a particular child care arrangement.

For example, parents may prefer day care center with a focus on the developmental outcome of the child, but if such a program is too expensive or not available to provide child care during the parents' working hours, the family may choose relative care, if it is relatively less expensive, and provides care during nontraditional hours (i.e., at night, in the evening, and weekends). Parents who prefer day care centers may also choose relative care if there is no day care centers in the neighborhood nearby.

On the other hand, for another example, previous studies show that child's age is strongly tied to parental child care choices (Han, 2004; Hofferth & Wisoker, 1992; Johansen, Leibowitz, & Waite, 1996; Larner, 1996; NICHD ECCRN, 2004; Riley & Glass, 2002). Parents of infants prefer home-based and relative care, while parents of preschool children are more likely to choose center-based care (Riley & Glass, 2002). However, a family with an infant may also

choose center care or family day care if there is no relative available in the household or in the close proximity.

### **A Child Care Selection Model Grounded in Ecological Framework**

The theoretical framework for the current study also draws upon the ecological model developed by Bronfenbrenner (1994). In this framework, both personal characteristics of the individual family members (including the developing child) and broader process and contextual factors are viewed as important in understanding parental behaviors (i.e., child care choices). More generally, Bronfenbrenner (1994)'s ecological model provides interconnected, hierarchical constructs hypothesized to influence human behaviors:

1) The micro-system. This system is the most proximal layer to the individual. The micro-system is the immediate environment in which individuals are embedded (Bronfenbrenner, 1994). This system consists of the immediate social and physical environment, such as the family, peer group, work, and school.

2) The meso-system. This system refers to the interrelationships between the various settings of the micro-system, for example, the linkage and processes between home and school. Therefore, it is also referred to as "a system of micro-systems."

3) The exo-system. Like the meso-system, this system also refers to the linkages and processes between two or more settings. However, in the exo-system, at least one of the settings indirectly influences the individual. For example, for a child, the relation between the home and the parent's workplace is an exo-system, as would be the relations between the school and the neighborhood peer group for a parent (Bronfenbrenner, 1994).

4) The macro-system. This system consists of "the overarching pattern of micro-, meso-, and exo-systems characteristics of a given culture or subculture, with particular references to the

belief systems, bodies of knowledge, material resources, customs, life-styles, and opportunity structures and life course options that are embedded in each of these broader systems”

(Bronfenbrenner, 1994, p40). It includes attitudes and ideologies that influence the other systems, as well as major historical events, spiritual and religious values, legal and political practices, and ceremonies and customs shared by a cultural group.

5) The chrono-system. This system includes change or consistency over time not only in the characteristics of the person but also the environment in which that person lives (Bronfenbrenner, 1994). For example, the chrono-system would include changes over the life course in family structure, socio-economic status, employment, and place of residence (Bronfenbrenner, 1994). It reflects how the particular time in which a person grows up influences human development.

Each of these systems shapes human development, and each system can impact the others. The general ecological model has been applied extensively to research in a number of fields to explain the development of a variety of behaviors, including child care selection (De Macro, 2006; Pungello & Kurtz-Costes, 1999; Seo, 2003; Van Horn, Mulvihill, & Newell, 2001). For example, Pungello and Kurtz-Costes (1999) relied on Bronfenbrenner’s concepts in developing a model to explain choice of child care. Their model attempted to elucidate the relationships among the environmental context (e.g., employment constraints, child care availability), maternal beliefs (e.g., beliefs concerning the effects of child care), maternal behaviors (i.e., child care search and selection behaviors), and child outcomes. In this model, “the environmental context influences parental beliefs” and “bidirectional relationships exist between parental beliefs and parental behaviors and between parental behaviors and child outcomes” (Pungello & Kurtz-Costes, 1999, p37). Pungello and Kurtz-Costes (2000) in turn

conducted a small study to examine the influence of environmental and maternal factors on infant child care selection. Van Horn, Mulvihill, and Newell (2001) used the Pungello and Kurtz-Costes model to examine if maternal characteristics, environmental factors, child factors, and maternal beliefs were related to certain categories of what parents considered as important to their child care choices. De Macro (2006) applied the model to explain how low-income families in rural communities search for and select child care to enable them to engage in work activity.

In this dissertation study, Bronfenbrenner's (1994) ecological model is used as a theoretical framework to examine the factors that influence child care choice by working mothers under different state policy contexts. The ecological framework explicitly acknowledges the multiple levels of environmental influence on individual behavior and development. Individuals are placed at the core of several concentric layers of influence, ranging from their immediate environments (micro-system) to the ideologies that prevail in their culture (macro-system). Outer layers of influence are theorized to constrain the characteristics, quality, and effects of more immediate environments. Accordingly, efforts are made to extend beyond the environments that individuals inhabit in their daily lives to understand precisely how other levels of environmental influence affect these daily settings and, ultimately, how such influences reach the individual (Phillips, Howes, & Whitebook, 1992).

Ecological models are particularly well-suited to the study of child care. The parent is embedded in the immediate social settings (micro-system, for example, mothers' race/education), which are directly affected by other settings in the community (exo-system, for example, employment structure). These two systems are in turn affected by the broader economic and political structures, such as welfare policies, child care subsidy policies, and child

care regulations, that influence how social institutions are organized in our society (macro-system).

The least often studied of these layers in all areas of child care choice research is the outermost, macro-system of influence. This is a particularly difficult set of factors to examine because of limitations in available data. Nonetheless, ecological theory acknowledges the influence of the macro level mechanisms, and policy mechanisms are important indicators of potential macro-system influences. These include policy interventions that focus on broad patterns of funding, organizational structure, policy incentives, and regulations (Phillips et al., 1992).

In the following chapter, the ecological model is used to organize and integrate research findings on child care selection, so that the relevant influences can be more specifically understood and research limitations can be identified. Although the selection and use of child care is a process that affects and is affected by the entire family, the primary focus of the review will be mothers' characteristics and environments. This decision to concentrate on mothers rather than fathers is based on prior literature concerning child care choice behavior, which has found that mothers have the primary responsibility for arranging and maintaining non-parental care arrangements in most families (Atkinson, 1991; Hofferth, Shauman, Henke, & West, 1998).

## **CHAPTER 4**

### **LITERATURE REVIEW: FACTORS INFLUENCING CHILD CARE SELECTION**

In this chapter, I use an ecological model to organize and integrate previous research findings on factors that influence mother's child care selection, including mother's individual level characteristics such as income, education, race and ethnicity, family structure, employment structure, children's age, gender, and other characteristics. This chapter also examines studies on neighborhood effects and state welfare policy effects on child care choices.

#### **Mothers' Individual Characteristics**

##### ***Income***

Many studies have examined how income affects parental choice of child care arrangements, and income generally has been found to be an important factor influencing choice. Higher income families select in-home care by a non-relative and child care centers at higher rates than families with lower incomes, who choose child care homes, federally subsidized care centers, and relative care more frequently (Capizzano & Adams, 2004; Ehrle, Adams, & Tout, 2001; Fuller, Kagan, & Loeb, 2002; Hofferth & Wissoker, 1992; NICHD ECCRN, 2004). For example, Capizzano and Adams (2004) used the National Survey of America's Families (NSAF) to examine differences in the primary child care arrangements of low- and higher-income children with working mothers. Their findings showed that children from high-income families are more likely to be in center care than children from middle- and lower-income families; children from low-income families are more likely to be in non-market forms of care and relative-provided care; and children from low-income families are also more likely to be in federally subsidized forms of care (e.g., Head Start) (Capizzano & Adams, 2004).

In another study using nationally representative data, Radey and Brewster (2007) found statistically significant relationships between poverty status and child care selection. They found that as family income increases, mothers are better able to use relatively high-cost forms of non-familial care, such as day-care centers and nannies; those who receive employer assistance with child care are more likely to use non-familial child care choices, such as center care (Radey & Brewster, 2007). In their ethnographic study in Wisconsin, Lowe and Weisner (2004) found that low-income families use more home-based than center-based programs. Further, of those who used home-based programs, families were more likely to use relatives than non relatives.

### ***Education***

The relationship between child care selection and maternal education also has been studied extensively. Mothers with higher education levels are more likely to place their children in center care than in family day care or relative care (De Marco, 2006; Early & Burchinal, 2001; Fuller, Holloway, Rambaud, & Eggers-Pierola, 1996; Hofferth et al., 1998; NICHD ECCRN, 2004). This may be because mothers with higher education levels weigh developmental characteristics of child care settings more than relational characteristics (e.g., knowing the provider), which is highly valued by less-educated mothers (Johansen et al., 1996). However, Pungello and Kurtz-Costes (1999) found that maternal education was no longer a significant predictor for type of care selected when economic variables were entered in the prediction model. Erdwins and Buffardi (1994) also found that the results for education parallel those found for income, and reported that income may account for these effects.

Furthermore, mothers' educational level and age of the child can interact and influence maternal child care choice. For example, Johansen et al. (1996) found that better educated parents of children younger than three years old tend to select family day care (non-relative care

in someone else's home) over center-based care, because parental concerns with the educational component of care increased only as the child aged (Johansen et al., 1996).

### ***Family Structure***

Family structure plays a role in parental decisions about child care arrangements. For example, recent studies have found that single mothers were more likely to use a child care center than married mothers (De Marco, 2006; NICHD ECCRN, 2004). However, in an earlier study, single mothers were also found to rely more on relative-based care than married mothers (McAdoo, 1997).

Families with teenage children or co-resident adults are less likely to use paid forms of care (Connelly, 1992; Johansen et al., 1996). For example, Johansen et al. (1996) found that the availability of other adults in the household influences a mother's choice of child care, because these other adults can provide a relatively inexpensive and convenient source of care. These authors also found that mothers in their sample who shared a household with any adult other than their spouse or live-in partner were significantly more likely to have care at home than in a day care center (Johansen et al., 1996).

Research has found that families with fewer children are more likely to use child care centers, while families with more children are more likely to choose care at home (Anderson et al., 2005; De Marco, 2006; NICHD ECCRN, 2004). This may be further explained by research using a cost effects prospective, in that in-home care may be more feasible than center care for mothers with more than one child (Johansen et al., 1996). This may be because families with multiple children have more difficulty arranging center care, especially when they have children with varying ages. In addition, in such families, it would be more inconvenient to arrange



multiple forms of care than just putting all of the kids into informal care (Anderson, Ramsburg, & Scott, 2003).

### ***Work Hours***

Maternal work hours may influence the type child care selected. Caruso (1992) interviewed 464 two-parent families with regard to their use of child care type for two year olds, and found that maternal work hours were related to parental care. Mothers who worked relatively fewer hours were more likely to have parental or other in-home care, whereas mothers who worked more hours were more likely to place their children in family day care or center care. In an earlier study, Fuqua and Labensohn (1986) surveyed 540 parents who used out-of-home-care, and found that mothers who worked more than 40 hours per week were more likely to select family day care over center day care.

### ***Work Structure***

Mothers' work structure also impacts the type of child care selected. Center-based care, for example, is widely available during the standard work week, but less available during nights and weekends (Presser, 2003). Parents who work a standard schedule consequently use center-care at higher levels, and parents with irregular schedules or nontraditional work shifts (e.g., other than 9-5 p.m. type hours) more often report using relative and father-provided care (Fuller et al., 1996; Han, 2004; Hofferth & Wissoker, 1992; Liang, Fuller, & Singer, 2000). Han (2004) further investigated the causality between work schedules and child care decisions among mothers with children under three years old. She found that children whose mothers work nonstandard hours are less likely to be cared for in center-based care; and mothers who changed to working standard hours were also found to switch children to center care (Han, 2004).

These work structure issues may be particularly important for low-income families. That is, studies have found that people with low skills and/or low education are more likely to work in jobs that require nonstandard hours, and this is particularly true among former welfare and low-income families (Loprest, 1999; Presser & Cox, 1997; Schumacher & Greenberg, 1999). It is therefore not surprising to see high levels of reliance on informal care arrangements among poor- and near-poor mothers.

### ***Race/Ethnicity***

Studies have found significant associations between ethnicity and type of child care chosen (De Marco, 2006; Fuller, Holloway, Liang, Rambaus, & Eggers-Pierola, 1996; Fuller, Holloway, & Liang, 1996; Hofferth & Wissoker, 1992; Honig, 2002; Radey & Brewser, 2007). It has been reported that European-American mothers primarily select regulated family day care, while mothers in other ethnic groups are more likely to rely on non-regulated providers such as relatives. For example, using an earlier wave of the National Longitudinal Survey of Youth, Hofferth and Wissoker (1992) found that African-American and Latino-American parents were most likely to rely on relative care. Some other studies, however, have found that Chinese-American, European-American, and African-American families are more likely to choose regulated child care arrangements, while Latino families are more likely to select relative care (Fuller, Holloway, Liang, Rambaus, & Eggers-Pierola, 1996; Fuller, Holloway, & Liang, 1996; Honig, 2002; Radey & Brewser, 2007). Brandon (2004) found that Mexican, Asian, and Hispanic children are also less likely to use center-based child care. Uttal (1996) speculated that minority parents may prefer relative care because they believe that it protects children from being seen as “different” in a predominantly white world, or else helps to reinforce their cultural identification.

### ***Immigration Status***

Beyond race and ethnicity, immigration status has also been found to be related to types of child care used (Brandon, 2004; Fuller, Holloway, & Liang, 1996; Nord & Griffin, 1998). Using data from the Survey of Income and Program Participation, Brandon (2004) found great diversity in the child care arrangements of children according to their nativity status. Children in immigrant families, especially those in low-income immigrant families, were less likely to use center-based child care. In an earlier study using data from the National Educational Household Survey, Nord and Griffin (1998) similarly found that children in immigrant families were less likely to be enrolled in child care centers than were U.S.-born children. They also found that enrollment rates differed by ethnicity, with Hispanic children in immigrant families less likely to enroll in child care programs than Asian children.

### ***Age of Children***

A few research studies have examined how the age of children influences child care choices. Age appears to be an important factor in determining whether a mother chooses to use child care at all, and it also is strongly tied to the types of care that parents choose (Han, 2004; Hofferth & Wisoker, 1992; Johansen et al., 1996; Larner, 1996; NICHD ECCRN, 2004; Riley & Glass, 2002). Not surprisingly, parents of infants prefer home-based and relative care (Hofferth & Wisoker, 1992; Johansen et al., 1996; Larner, 1996; Riley & Glass, 2002). Parents then increasingly choose family child care homes and centers as their children age, with center care becoming dominant by the third year (Han, 2004; NICHD ECCRN, 2004). For example, the GUP study found that at the start of the study, when children were between 12 and 42 months old, mothers most frequently selected home-based care, either with relatives, friends, or in family child care homes. By the second round of data collection, when the children were between 36

and 60 months old, more children were enrolled in center-based care (Fuller & Kagan, 2000; Fuller, Kagan, & Loeb, 2002).

### ***Care Seeking Behavior***

It has been reported that parents typically find child care placements through informal resources, such as recommendations from friends, co-workers, relatives, and neighbors, or by previously knowing the caregiver (Atkinson, 1994; Larner, 1996; Singer et al., 1998). For example, a national survey in 1990 indicated that 66% of parents who arranged child care outside the family relied on such informal sources of information about child care, whereas 13% used advertisements, and 9% turned to resource and referral agencies (Larner, 1996). Seo (2003) found in his pilot study of 47 young mothers that 69% of the mothers selected maternal social networking (e.g., recommendation of others, such as neighbors, friends, relatives, or co-workers) to inform them about child care choices.

On the contrary, mother's child care choice have not been strongly influenced by formal sources, for example, through consulting with experts, getting information from brochures, and referrals from community child care resource and referral services. However, these formal sources have been found to be helpful for locating the best possible and most affordable center-based care for parents (Atkinson, 1994; Zinzeleta & Little, 1997).

Studies also found that families may spend between two to seven weeks finding acceptable child care (Galinsky et al., 1994), a time span that likely interferes with low-income parents' ability to successfully enter the workforce (Kisker & Ross, 1997).

### ***Neighborhood***

Previous studies on neighborhood effects on child care choices have focused on child care supply issues, such as the effects of neighborhood child care center availability. Often using

small samples, such studies looked at deprivation of resources in poor neighborhoods, as well as supply and demand issues affecting quality child care options in poor neighborhoods or rural areas (Fuller, Holloway, & Liang, 1996; Hofferth & Wissoker, 1992; Honig, 2002). For example, parents sometimes choose family day care over center-based care simply because centers are not available in close proximity, while family day care is usually located in parents' neighborhoods (Fuller et al., 1996; Galinsky, Howes, Kontos, & Shinn, 1994; Honig, 2002; Johansen et al., 1996; Lerner, 1996). In poor neighborhoods, when centers are available, parents choose this form of care more frequently than other forms of care (De Marco, 2006).

The Growing Up in Poverty (GUP) project was able to use a larger sample than most previous studies in examining child care choices from a community prospective. This project studied 948 single welfare mothers who had preschool age children in five cities across three states (Fuller et al., 2002). The findings suggest that the differences in child care selection patterns by welfare mothers were partially explained by the differences in per capita supply of slots in centers and family child care homes in neighborhoods where the mother resided. Another study used California zip code data and obtained a similar result: there was a close association between the share of welfare parents who selected a center or family child care homes and per capita supply of these care types in their neighborhoods (Hirshberg & Fuller, 2002).

Li-Grining and Coley (2006) used a nationally representative data set to describe the child care experiences of children from low-income neighborhoods in Boston, Chicago, and San Antonio. Results indicated that most children were in Head Start centers, other centers, or relative care. However, this descriptive study was not able to determine if there is an association between neighborhood socioeconomic and demographic characteristics and the types of child care that are chosen by residents.

Fuller and Liang (1996) used Massachusetts data to estimate child care center supply by geographic location. They reported mixed findings: supply is higher in zip codes where more residents rely on income supplements from welfare programs but lower in zip codes with a higher concentration of single-parent households and in the poorest 5% of zip codes. Siegel and Loman (1991) used Illinois data and found that zip codes with the highest concentrations of low-income families were less likely to have childcare centers than other areas. Queralt and Witte (1998) used tract-level data in suburban Massachusetts and found that supply of full-day centers is significantly lower in “socioeconomically distressed neighborhoods”.

No studies have examined the direct relationships between child care choice and neighborhood characteristics. Further, the previous studies have largely used local data or state level data, no studies has been conducted using nationally representative data, or have focused in nationally large cities.

### ***State Policies***

The PRWORA welfare policies and the federal child care subsidies were designed to increase parental employment and to enhance support for paid child care. As were discussed in a previous section, although the federal government invests significant funds for those purposes through state block grants, states have been granted substantial flexibility in designing their own welfare and child care subsidy programs. States consequently have supplemented their federal funding at very different levels, and govern their subsidy systems in different ways (e.g., varying eligibility levels and client co-payments). In this section, I focus on two main sets of policies that may influence the choices that low-income working mothers make with respect to child care – TANF and CCDF.

## TANF

States have been given great discretion in designing many aspects of their TANF regulations. They have flexibility in determining the eligibility of different family types, how income is counted in determining eligibility, benefits for different family types, earned income disregard levels, required work activities, and time limits regarding how long the family can receive benefits. For example, with respect to maximum income levels for initial eligibility for a family of three as of 2002, there are states as generous as Hawaii (\$1,641), Alaska (\$1, 641), and Pennsylvania (\$1,278), and states as penurious as Alabama (\$205) and Arkansas (\$279). Similarly, monthly benefit maximums for a family of three with no income in 2002 ranged from \$164 in Alabama to \$923 in Alaska. In addition, some states include noncitizens in the units eligible for assistance, while other states do not (The Urban Institute, 2002).

## CCDF

States have also been given considerable flexibility in designing their CCDF programs, including the income eligibility limits, required family co-payments, licensing requirements, and reimbursement rates to providers (Blau, 2000). Mother's potential eligibility for child care subsidies is constructed based on two criteria under state rules: family income and parental work status (Child Care Bureau, 2003). First, a family must have monthly income below the income eligibility threshold for a family of the given size established by the state of residence. Most states set income eligibility limits substantially below the level allowed by federal law, which is 85% of the state median income (SMI). Nine states set the income eligibility limit at less than 50% of SMI, while only three states set their income eligibility at 85% of the SMI. When measuring the household's monthly income, there also are variations in definitions of income used by the states. For example, some states do not count income from TANF, SSI, or food

stamps in their determination of CCDF eligibility. Second, both the mother and the father (if there is a spouse present) must be either working or attending job training or an educational program. Three states require the parent to work at least a minimum number of hours per week (e.g., 20 hours) to be eligible for CCDF-funded subsidies, while the other states have no such minimum hour requirements. If these two criteria are satisfied, then the mother is eligible for a child care subsidy (Child Care Bureau, 2003).

Child care providers must meet state regulations and licensing standards. If they are legally exempt from licensing, such as relatives and babysitters, they must meet basic health and safety standards. Such regulations are determined entirely at the state level, and they vary considerably (Child Care Bureau, 2003).

#### Review of Studies on State Policies

Although state governments have been granted flexibility in determining their child care policies, studies on the effects that welfare and child support policies may exert on child care choices have been quite limited. Crosby, Gennetian and Huston (2005) investigated the effects of a set of child care and welfare policies on single parents' use of different types of child care for toddlers, preschool-age, and young school-age children. The policies were integrated within pilot welfare and employment programs that were implemented from the late 1980s to the early 1990s. The study found that only programs with policies designed to increase family's access to paid child care affected the types of care used by families. Programs that offered more comprehensive, more efficient or more generous child care assistance to families increased the use of center-based rather than home-based care for all age groups studied. Such programs also increased the duration and stability of center care. Robins (2007) conducted a similar study using ten experimental welfare-to-work programs to examine the effect of welfare reform on the child



care choices of families subjected to welfare reform policies, and also found that generous child care assistance policies increased the use of center-based care as compared to home care.

Others who have conducted research in this area include Gennetian, Vosby, Huston, and Lowe (2002), who assessed the effects of selected welfare and child care policies on child care and subsidy use in nine experimental evaluation studies. They found that almost all of the pilot welfare and employment programs increased employment and led to concomitant increases in the use of child care. However, only those programs that expanded the accessibility or affordability of child care consistently increased the use of child care subsidies.

The above studies used experimental data and have provided useful results for testing causal inferences regarding welfare program impacts on child care. However, these studies are limited in that direct effects of TANF and CCDF policies have not been included. In fact, the programs being tested included multiple components, and it therefore becomes difficult to draw conclusions that the outcomes are due to the effect of any particular welfare program. Further, the experimental conditions in these studies are not comparable to the real world policy variations. In particular, the experimental sites generally included richer welfare and child care benefits that are likely to be available in large-scale state programs. This raises the question of whether policy variations in state-wide programs still may be of sufficient magnitude to affect the types of child care that parents choose.

Rigby, Ryan, and Brooks-Gunn (2007) used nationally representative data to examine the state policies' effect on mothers' choices of child care. However, the study only included a limited set of mothers' individual characteristics as control variables. In addition, the study used only logistic regression methods and only compared the choice between every two types of the child care choices (i.e., center care and other), and therefore could not draw a whole picture of

mothers' child care arrangements. In addition, this study was not able to identify other aspects of state child care policy, including whether states help parents locating child care, and whether states put limitations on the use of family day care.

## **CHAPTER 5**

### **RESEARCH QUESTIONS AND STUDY CONTRIBUTIONS**

The previous chapter summarized important studies pertaining to factors that have been found to influence child care choices by families. However, few of these studies were conducted in the period following the implementation of PRWORA welfare reforms; so much of the evidence may not reflect the child care situations facing working mothers under the new policy regime. Studies conducted since PRWORA have begun to fill this void, but have been limited in some important respects. In particular, such studies have been limited in that they generally have used small samples, have not used nationally representative data sets, or have been conducted in experimental settings.

Further, although some analyses concerning how environmental factors affect child care choices have been conducted, studies to date have concentrated largely on the availability of local child care programs and the comparison of rural and urban areas. There has been no study testing whether neighborhood socioeconomic characteristics affect parental child care arrangements. In addition, no study has examined neighborhood effects on child care choices using a nationally representative data.

Another limitation is that most previous studies examining child care choices have not take into consideration the effect of public policies. According to ecological theory (Bronfenbrenner, 1994), public policies (e.g., welfare and child care policies), as macro-systems factors, also may influence parental child care choices in important ways. However, few studies have examined how such factors may affect child care.

The preceding discussions suggest that the national distribution of child care arrangements of working families, and how working families choose their child care

arrangements in the post welfare reform era, requires further exploration. Analyses of more representative samples of mothers with young children are needed, as is a more refined examination of how different individual, neighborhood, and policy factors affect parental choices.

The current study is intended to take some useful steps in this direction. Fragile Families and Child Wellbeing (FFCW) data are used to examine the determinants of child care arrangements for employed, predominately social economically disadvantaged mothers, under different community and policy contexts. I investigate the extent to which individual factors predict the type of child care used by these mothers, as well as whether neighborhood socioeconomic and demographic characteristics affect such choices. Further, I assess how state social welfare policies, including state child care subsidy and TANF policies, predict the child care selection of these mothers.

More specifically, I examine factors influencing the particular types of child care arrangements selected: center care, non-relative family day care, and relative care by disadvantaged working mothers. Regression analyses first are employed to analyze the extent to which micro level factors, (e.g., maternal employment structure, family structure, income, receipt of child care subsidies), and neighborhood factors predict the type of child care used. Next, I assess how macro level factors, such as state welfare policies and child care subsidy policies, influence these choices.

The specific research questions to be examined are:

1. What individual level factors (maternal employment structure, income, family structure, race/ethnicity, education, children's age, gender) influence the types of child care chosen of working mothers?

2. How do neighborhood factors (neighborhood poverty, racial distribution, and immigrant composition) influence the choice of child care of working mothers?
3. How do the macro level factors (i.e., state child care policies and TANF policies) affect the choice of child care of working mothers?

Findings from these analyses should be useful in furthering our knowledge regarding the child care arrangements of working mothers. In addition to filling gaps in current knowledge, study findings are useful in informing social policies and interventions related to child care arrangements the working mothers, particularly by elaborating how welfare policies may affect the child care arrangements of social economically disadvantaged working mothers. For example, it may be that more generous TANF benefits levels lead to the increased use of center care, which generally has been shown to be of higher quality than family day care and relative care. Higher quality center care in turn may lead to better developmental outcomes for children, and also may create less work-related child care problems for working mothers. The findings thus may have implications for policy makers intending to use state welfare policy and child care policies to help disadvantaged families balance work and family obligations in the United States.

## **CHAPTER 6**

### **DATA AND SAMPLE**

I investigate my research questions using secondary data from the Fragile Families and Child Wellbeing (FFCW) study. The FFCW follows a stratified random sample of 4,898 primarily single, low-income mothers with children born between 1998 and 2000 in 20 cities (15 different states) across the United States (Reichman, Teitler, Garfinkel, & McLanahan, 2001).

The 20 cities first were selected from the 77 U.S. cities having populations of 200,000 or more. Cities were scored to identify those with extreme values for each of the policy and labor market conditions of interest. One city was randomly selected from each of the eight types of extreme environments (e.g., one city with generous welfare benefits, strict child support enforcement, and a strong labor market, another city with generous welfare benefits, strict child support, and a weak labor market, and so on). Eight additional cities were randomly selected from the group of cities with moderate policy or labor market conditions. Four additional cities of specific interest to researchers were also included in the study.

The base line interviews were conducted between February 1998 and September 2000. Both mothers and fathers were interviewed in person in either English or Spanish roughly 72 hours after the birth of a child. Follow-up telephone interviews and home visits then were conducted through the child's first 9 years of life. The one-year follow-up interviews were conducted between June 1999 and March 2002, the three-year follow-up interviews between April 2001 and December 2003, the five-year follow-up interviews between July 2003 and February 2006, and the nine-year follow-up between 2007-2009.

The FFCW data have characteristics that make the data attractive and unique for studying the topic. First, the FFCW is a large data set that was initially collected during 1998 and 2002, so

parental decisions about child care were made in the new era of welfare and child care policies. Second, data were collected with nearly 5,000 low-income mothers, which provide sufficient statistical power for robust analysis. Third, the FFCW provides census tract data, which allows examination of neighborhood socioeconomic and demographic characteristics that may affect parental choice of child care. Fourth, FFCW data are well suited for testing whether child care choices may be influenced by the generosity of state public policies. It has proven difficult to assess state policy effects on the types of care children experience. Although evidence exists that structural factors are associated with the child care choices made by parents, it is more difficult to determine whether state-level regulations are associated with actual child care choices. Because the cities in FFCW were drawn through a stratified random sampling procedure that was designed to capture the different contexts of welfare policies and labor market conditions (Reichman et al., 2001), the data provides a good opportunity for examining how state policy variations may affect child care choices.

The study uses data collected from the mother at the child's birth and Year 3 follow-ups. Response rates for FFCW were high, with 4,898 mothers completing the questionnaire at baseline. The Year 3 interview was completed by 4,231 mothers, and the response rate at Year 3 is 86% (CRCW, 2008).

Analyses for this study use only the Year 3 survey, when children were 35 months old on average, ranging from 20 months old to 50 months old. The Year 3 data are used because at this age, children become eligible for most types of child care; in particular, they become eligible for most day care centers. Therefore, examining type of care choices for this group of children allows examination of how maternal characteristics, community features, and the generosity of

state welfare<sup>1</sup> may influence a relatively full range of choice options. In addition, there has been considerable national attention from both child care policy and practice prospective in encouraging preschool age children to enter high quality child care, such as center care, Head Start, or other early learning programs.

The study sample includes mothers who were interviewed at Year 3, were employed, were using non-parental child care at the time of the interview, and those who did not move out of the 15 states in which the baseline interviews were conducted. Employed mothers are selected because of both their need for child care during working hours and my research interest in the association between work characteristics and child care choice<sup>2</sup>. I also restricted the sample to mothers who stayed within the 15 states because the original 15 states in which the 20 cities were located reflect the extreme distribution of welfare policies, and measuring the effects of policy changes would be compromised if cross state moves were included. Application of the above criteria resulted in a sample of 1,833 working mothers using noncustodial child care in 15 states. I then excluded cases that had missing values on the dependent and independent variables using stepwise deletion. This resulted in a final sample size of 1,445<sup>3</sup>.

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<sup>2</sup> In the Year 3 interviews, mothers were asked “Last week, did you do any regular work for pay?” This measure was used to determine whether the mother was employed at the time of the interview. In this process, there were two cities (Austin and Oakland) in which interviewees were not asked the questions about work schedules for their primary jobs, the observations for these two cities were excluded from the analysis.

<sup>3</sup> Sensitivity tests were conducted to find if there is systematic difference between deleted observations. The tests show that deleted cases (due to missing values on DV/IV) were more likely to have nonstandard working hours (52.35% vs 18.70), lower education (28.13% vs 19.89 for less than high school education level,  $p=0.002$ ), more likely to be Hispanic (38.27% vs 20.37,  $p<0.0001$ )



## **Variable Description**

### ***Dependent Variable***

The dependent variable in this study is the type of child care selected by working mothers. At the Year 3 interviews, mothers were asked if the child was being cared for by someone other than the mother (or father), how many hours a week the child was in care, and what type(s) of arrangement(s) they were using. I included all mothers who reported using child care provided by someone other than a custodial parent, and who identified their primary arrangement (i.e., the arrangement in which the child spent the most time). Their responses are collapsed into the following categories: (i) relative care, (ii) family day care, and (iii) center care. Relative care included family members of the mother or father, her or his partner, or her or his partners' relatives, as well as non-resident fathers. Family day care included children cared for in an informal group setting with other children, such as a neighbor's house. Center care included day care center, as well as Head Start and Early Head Start programs.

### ***Independent Variables***

This study included a rich set of independent variables including mothers' individual characteristics, neighborhood characteristics, and state policy variables to examine the factors that could influence their child care decision making.

#### **Work Characteristics**

Work characteristics are measured at Year 3 and include mother's weekly work hours and her work schedule.

Work hours are measured as mothers' time worked weekly. During the Year 3 interviews, mothers were asked "Last week, did you do any regular work for pay?" and "How many hours/week do you usually work that job?" This indicator of time worked weekly, coded as

a continuous variable, unfortunately pertains only to the mother's primary job and thus underestimates actual hours worked.

Work schedule is coded "1 (Yes)" to indicate a non-standard work schedule, based on the mother's response to questions about whether she regularly worked evenings (6-11 p.m.), nights (11 p.m.-7 a.m.), or weekends. At Year 3 interviews, mothers were asked "Do/did you regularly work: weekdays" "Do/did you regularly work: evenings?" "Do/did you regularly work: nights?" "Do/did you regularly work: weekends?"

#### Presence of Grandparent in the Household.

At Year 3 interviews, mothers were asked to identify if there was a grandparent living with them. This variable is coded as "1 (Yes)" if the mother has a grandparent living with her, and "0 (No)" if not.

#### Maternal Education

Mothers' education level is measured at the baseline interview and coded as dummy variables (less than high school, high school diploma or GED, or more than high school). The reference group is mothers with education of more than high school.

#### Race/ethnicity

This information is obtained at the baseline interview. Mothers were asked their race, and if they were of Hispanic or Latino origin or descent. Mothers who indicated that they were not of Hispanic or Latino origin are coded as Black or White based on their response to the race question. Mothers who stated that they were of Hispanic or Latino origin are coded as Hispanic regardless of race. This measurement of Hispanic/Latino origin is not ideal, in that it pools groups that have somewhat different socioeconomic profiles and patterns of ethnic reaffirmation (Bean & Tienda, 1987). However, this indicator does capture a critical dimension of ethnic

identification in a context in which Hispanics are gaining ground demographically, socially, and politically. The reference group is mothers who were white.

#### Household Poverty Level

Household poverty level was identified at Year 3. Mothers were asked the amount of total income of their household from all sources before taxes and other deductions, including income from jobs and public assistance programs, as well as any sources such as rent, interest, and dividends. The variable is coded as a categorical variable, i.e., less than 100%, 100-200%, or more than 200% of the Federal poverty line. The reference group is mothers with income more than 200% of the Federal poverty line.

#### Marital Status

At Year 3, mothers who were married at the time of the interview are coded as “married”, those who answered “cohabitating” are coded as “cohabitating”, and the rest of the women are coded as “neither married nor cohabitating.” The reference group is married mothers.

#### Child’s Gender

During the baseline interviews, mothers were asked about the gender of the child. This variable is coded as “1” if the child is a boy and “0” if child is a girl.

#### Child’s Monthly Age

During the Year 3 interviews, mothers were asked about the child monthly age at time of interview. This indicator is coded as a continuous variable.

#### Child’s Low-birth Weight

During the baseline interviews, mothers were asked about whether the child had a low-birth or not. This variable is coded as “1” if the child had a low-birth weight, and “0” if not.

### Neighborhood Racial and Socioeconomic Characteristics

The data for neighborhood characteristics is obtained from the contract data of the FFCW. The contract data file contains tract-level 2000 census data for the tracts where the mothers and fathers lived at the time of the baseline interview, and at the one year and three year follow-up interviews. At each interview, cases were assigned a geocode and associated tract characteristics from the 2000 census, and then were linked to the individual records. The study uses the measures of tract level racial composition, poverty composition, and portion of foreign born by merging the core data and the contract data.

#### *Racial composition*

This measure includes the following variables: the percentage of population non-Hispanic African American, and the percentage of Hispanic. These measures are coded as continuous variables.

#### *Poverty composition*

Neighborhood poverty composition is measured as the percent of families that have incomes below the poverty level in 1999. This variable is coded as a continuous variable.

#### *Percentage of foreign born*

Neighborhood foreign born percentage is measured as the percent of families that have incomes below the poverty level in 1999. This variable is coded as a continuous variable.

### State TANF Policies

The models include two indicators of state welfare generosity- the state TANF maximum monthly eligibility standard for a family of three with no income, and the value of the cash TANF benefits for a family of three with no income.

### *State TANF maximum monthly eligibility for a family of three with no income*

This information is obtained from the Welfare Rules Databook: State Policies as of July 2002, prepared by the Urban Institute. In this databook, Table I.E.4 (pp 64-65) provided information on the maximum income for initial eligibility for a family of three as of July 2002 in each state.

### *State TANF cash benefit for a family of three with no income*

TANF cash benefits are measured as the maximum monthly benefit for a family of three with no income, which is also available from the Welfare Rules Databook: State Policies as of July 2002. In this databook, Table II.A.4 (pp 80-81) provided information on the maximum income for initial eligibility for a family of three as of July 2002 in each state.

### Child Care Subsidy Policies

The models include four measures of state child care subsidy policies - the state child care subsidy eligibility, state child care subsidy spending on each child in the state in average, whether state child care lead agencies directly locate child care for parents, and whether state child care lead agencies put limitations on the use of family day care. The information is obtained from Child Care and Development Fund – Report of State Plans FY 2002-2003, prepared by the Administration for Children and Families of the Department of Health and Human Services.

### *State child care subsidy eligibility for a family of three*

The child care subsidy eligibility standard is the state maximum income that a family of three can earn to qualify for a child care subsidy. This is obtained from the Child Care and Development Fund – Report of State Plans FY 2002-2003, prepared by the Administration for Children and Families of DHHS. In this report, Table 3.3 (pp 81-83) shows the upper income

level for a family of three that was used in limiting child care subsidy eligibility determination in 2002.

#### *State child care subsidy spending*

This is the total federal and state spending on child care subsidies divided by the total number of children aged 0-5 in the state. The total federal and state spending on child care subsidies is also obtained from the Child Care and Development Fund – Report of State Plans FY 2002-2003. In this report, Table 1.3 (pp 4-5) lists the estimated amounts for child care spending in FY 2002 including funding from the following sources: Federal Child Care and Development Fund, Federal TANF transfers to CCDF, direct Federal TANF spending on child care, State maintenance of efforts funds, and State Matching Funds. The total number of children aged 0-5 is obtained from the CCDF Data Table from the Administrative for Children and Families data for FY 2002. The above monetary variables are adjusted for cost of living to count for the variance of the monetary variables due to the difference in geographic locations using the index of Berry, Fording, and Hanson (2000).

#### *Assistance on locating child care*

As reported by the Child Care and Development Fund – Report of State Plans, in 2002, the child care lead agencies in some states directly help parents to locate child care, while others do not. According to the Child Care and Development Report, 16 states directly assisted parents with locating child care in 2002, while 28 states indicated that they did not assist parents in locating child care. This variable is coded as “1” if the state assists parents locating child care, and “0” if the state does not assist parents in locating child care.

*Limitation on the use of in-home care*

As reported by the Child Care and Development Fund – Report of State Plans FY 2002-2003, all states allowed for in-home care in 2002. However, some states put certain limitations on the use of in-home care, while others did not limit the use of in-home care. As reported by the states, 22 states did not limit in-home care; but 28 states reported that they limited the use of in-home care in some way. Some of these limitations are for financial reasons while others result from quality concerns. Some examples include the minimum number of children in the care setting, must meet minimum health and safety standards, must undergo criminal background checks, and must attend an orientation or training session. This variable is coded as “1” if the state placed on any limitations on the use of family day care, and “0” if not.

## **CHAPTER 7**

### **METHODS OF ANALYSIS**

The analysis consisted of three steps. First, descriptive statistics were calculated for all variables, and variations in state level variables also were compiled. Second, bivariate analyses were conducted to test the associations between child care arrangements and each of the independent variables. Chi-square tests were used to identify the statistically significant associations. Continuous variables were regrouped into quantiles to examine whether they are associated with the dependent variable, which is a three level categorical variable. Third, multilevel models were estimated to examine the effects of individual characteristics, neighborhood characteristics, and state welfare policies on working mothers' child care arrangements. The multivariate analyses also assess the contributions of the different sets of factors to state variations in child care arrangements.

#### **Descriptive Analysis**

Descriptive analyses are presented first to suggest a general picture of mothers' child care arrangements and basic socio-economic characteristics of the sample. Percentage distributions of categorical variables are presented, as are mean and standard deviations for continuous variables. Because of the particular interest is the diversity of primary child care arrangements used in this population, cross tabulations also are presented to illustrate state variations on types of child care arrangements.

#### **Bivariate Analysis**

Bivariate associations between child care types and each of the independent variables were conducted. Contingency tables are used to identify whether the variables are significantly related to the child care arrangements before controlling for other factors. Continuous variables



were categorized into quantiles so that contingency tables can be made between such variables and the child care arrangements.

### **Hierarchical Multinomial Logistic Regression Models**

#### ***Multinomial Logistic Regression***

In this analysis, the dependent variable is the type of child care used, i.e., child care center, family day care, and relative care, which have no natural ordering. Therefore, the association between independent variables and arrangement type are estimated using multinomial logistic regression, which is appropriate for polytomous dependent variables with no natural ordering (Menard, 2002). In logistic regression, one value of the dependent variable is designated as the comparison or reference category. In my models, the comparison category is center care. In multinomial logistic regression, the coefficients are estimated by maximizing likelihood (Hosmer & Lemeshow, 2002).

#### ***A Hierarchical Structure***

Traditional multinomial logistic regression does not take into consideration the levels of data structure. Due to the nested nature of the FFCW data and the purpose of examining state policy effects in this study, a hierarchical structure is applied in conducting the multinomial logistic regression to examine the effects of state policy variables, and community and individual level factor effects on types of child care. The hierarchical model is a multilevel analysis used for the analysis of data with complex patterns of variability, with a focus on nested sources of variability (Snijders & Bosker, 1999).

In the FFCW, 20 cities were first randomly selected from 77 large cities in the U.S. The cities also were selected to represent extreme welfare generosity and labor market participation. This multi-stage sampling created clustered data, and this data structure must be taken into

account to avoid the risk of overlooking group effects and to examine the effects of state level factors on maternal child care choices. The advantage of this approach is that researchers can obtain statistically efficient estimates of regression coefficients and correct standard errors, confidence intervals, and significance tests, and can use covariates measured at any of the levels of the hierarchy.

In this model, individual-level factors, such as maternal employment structures, family structures, income, neighborhood variables and other factors are placed at Level 1 because they vary at individual levels<sup>4</sup>; state policy variables, including state child care subsidy eligibility and spending, whether the state helps to locate child care, whether the state limits the use of in-home care, and TANF eligibility and benefits, are entered at Level 2. At level 2, random-intercept is used because it is appropriate when a set of key predictors (i.e., child care subsidy policies and TANF policies) are measured at the group (i.e., state) level, but the outcome variable was measured at the individual level (i.e., mothers' choices of type of care) (Raudenbush & Bryk, 2002).

The model of the analysis can be expressed as the following:

Level 1:

$$\text{Prob (Relative care)} = \pi_1$$

$$\text{Prob (Family day care)} = \pi_2$$

$$\text{Prob (Center care)} = \pi_3$$

$$\text{Logit (Relative care)} = \text{Log} (\pi_1 / \pi_3)$$

$$\text{Logit (Family day care)} = \text{Log} (\pi_2 / \pi_3)$$

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<sup>4</sup> Ideally, neighborhood characteristics should be viewed as a level 2 variable, then state policy can be the level 3 variable, and therefore the analysis should be a 3-level hierarchical multinomial logistic regression. However, in this particular data set, 1,445 observations (i.e., mothers) were scattered in around 1,168 neighborhoods and in 971 (83.13%) neighborhoods, there is only 1 observation. Therefore there were no clusters at the neighborhood level. In this case, neighborhood variables were viewed as varying at the individual level and were treated as individual level variables.

Logit (Relative care) =  $\beta_0 + \beta_1$  (Vector of Individual Factors) +  $\beta_2$  (Vector of Neighborhood Factors) + R

Logit (Family day care) =  $\beta'_0 + \beta'_1$  (Vector of Individual Factors) +  $\beta'_2$  (Vector of Neighborhood Factors) + R'

Level 2 intercept:

$\beta_0 = \gamma_{0l}$  (Vector of Policy Factors) + U

$\beta'_0 = \gamma'_{0l}$  (Vector of Policy Factors) + U'

where  $U \sim N(0, \tau^2)$ ,  $U' \sim N(0, \tau'^2)$

Level 2 slopes:

$\beta_1 = \gamma_{10}$

$\beta_2 = \gamma_{20}$

$\beta'_1 = \gamma'_{10}$

$\beta'_2 = \gamma'_{20}$

Full model:

The above model could be re-written as follows:

(1) Logit (Relative care) =  $\gamma_{0l}$  (Vector of Policy Factors) +  $\gamma_{10}$  (Vector of Individual Factors) +  $\gamma_{20}$  (Vector of Neighborhood Factors) + U + R;

and

(2) Logit (Family day care) =  $\gamma'_{0l}$  (Vector of Policy Factors) +  $\gamma'_{10}$  (Vector of Individual Factors) +  $\gamma'_{20}$  (Vector of Neighborhood Factors) + U' + R'

and

where  $U \sim N(0, \tau^2)$ ,  $U' \sim N(0, \tau'^2)$

## **CHAPTER 8**

### **FINDINGS**

The study was able to obtain important findings regarding individual, neighborhood, and state policy factors influencing child care choices of working mothers through above descriptive, bi-variate, and multivariate analyses.

#### **Descriptive Analysis**

Table 1 presents descriptive statistics of the sample, and also shows how the characteristics of the sample vary across states (with the state minimum and maximum values, i.e., the average lowest and highest for all cases in that state), while Table 1 presents state level policy variable values for each of the study cities. Of particular interest in Table 1 is the diversity of primary child care arrangements used in this population. One-half of mothers relied on child care centers for their three-year-olds, one-third of mothers used their own or fathers' relatives and only 14% used nonrelative family day care. Table 1 also reveals that there was substantial between state variations on child care selection. This will be further explained in the following bi-variate analysis section.

More than half of the samples were single mothers, while 29% were married and 17% were co-habiting. About 16% had a grandparent living with them in the home. About half of the respondents were African American; while one fifth was White and another one fifth were Hispanic. Educationally, more than half of respondents had at most a high school degree, with about a fifth not completing high school.

Half of the mothers had nonstandard working hours (work regularly in the evening, during nights, or weekends). On average, they worked 37 hour per week. About half of the respondents had household incomes of more than 200% of the FPL, while one-fourth had

household incomes between 100-200% of the FPL and about one-third had household incomes below the FPL.

The gender of the children was roughly equally distributed between male and female. The children's average monthly age was 35 months old. About one-tenth of the children had low birth weight.

Turning to neighborhood variables, the average respondent was living in neighborhoods with about 43% of non-Hispanic African American and 15% Hispanics. The neighborhoods in which respondents on average had 11% foreign born populations, and the average poverty rate in these neighborhoods was 17%. Embedded in these averages is substantial variation between neighborhood rates for each of these variables. The poverty rates for the neighborhoods ranged from 7 to 24%; the rate of African American residents ranged from 4 to 71%, neighborhood Hispanic rates ranged from one to 60%; white rates ranged from zero to 99%; and the immigrant rate ranged from two to 36%.

Overall, the descriptive analysis indicates that respondents were relatively disadvantaged economically and educationally<sup>5</sup>. In addition, the socio-demographic characteristics of the respondents varied substantially across cities/states.

Table 2 presents the summaries of state child care subsidy and TANF policies in 2002. Child care subsidy eligibility was the maximum monthly income that a family of three can earn to qualify for a child care subsidy. As shown in Table 2, the average in the fiscal year 2002-2003 was \$2455.89 (SD [Standard Deviation] =57.83), ranging from as low as \$1693.89 in Ohio to a high as \$3670.04 in Virginia (see Table 2).

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<sup>5</sup> According to National Study of American Families, in 2002, nationally there were 29.2% low-income Americans (income less than 200% of the FPL), and 12.3% of Americans have income less than 100% of the FPL (The Urban Institute, 2004).

State child care subsidy spending was the total federal and state spending on child care subsidies divided by the total number of children aged 0-5 in the state. On average, states spent \$489.37 (SD =180.68) for each child 0-5 in fiscal year 2002-2003 on child care subsidy spending. There were considerable state variations on such child care subsidy spending ranging from the lowest in San Antonio in Texas (\$282.48) to the highest in Boston Massachusetts (\$1080.55). In addition, of all the states, 73.91% of the states provided help for parents in locating child care, and 34.95% of the states put on some limitations on the use of in-home care.

State TANF eligibility was measured by the maximum monthly eligibility for a family of three with no income. The average state TANF eligibility was \$742.37 for a family of three (SD =318.29) in fiscal year 2002-2003, and it ranged from \$363.59 in Florida to 1384.42 dollars in Wisconsin. State monthly TANF benefits for a family of three in fiscal year 2002-2003 averaged \$404.10 (SD =134.97), and ranged from \$177.31 in Texas to \$656.03 in California.

Table 1. Characteristics of Analysis Sample (N=1,445)

	Sample Mean (%)	State-Level Minimum (%)	State-Level Maximum (%)
Caretype			
Center Care	51.14	35.64	75.76
Relative Care	34.58	20.77	48.84
Family Day Care	14.28	3.03	31.68
Marriage			
Married	28.90	15.56	39.53
Cohabit	17.67	8.33	23.40
Neither	53.43	37.21	66.67
Grandparent at home	16.15	7.50	22.22
Work hour	37.4 (9.65)	35.71	40.57
Nonstandard work	52.32	39.39	62.07
Education			
< high school	19.89	3.03	29.7
High school	33.13	12.50	39.32
> high school	46.99	40.00	67.50
Race			
White	23.35	4.26	66.67
African American	53.29	2.33	81.90

Table 1. (cont.)

Hispanic	20.30	0.00	70.90
Other race or ethnicity	3.05	0.00	18.60
Income			
< 100% FPL	28.00	15.15	35.38
100-200% FPL	26.06	19.00	33.62
> 200% FPL	45.95	35.38	60.61
Child gender (boy)	52.18	45.10	62.50
Child age in months	35.26 (2.22)	34.44	36.40
Child low-birth weight	9.22	3.49	16.05
Neighborhood African American	0.43(0.37)	0.04	0.71
Neighborhood Hispanic rates	0.15 (0.23)	0.01	0.60
Neighborhood poverty rates	0.17 (0.13)	0.07	0.24
Neighborhood immigrant rates	0.11 (0.13)	0.02	0.36
State TANF eligibility	742.37(318.29)	363.59	1384.42
State TANF benefit	404.11(134.97)	177.31	656.03
State child care eligibility	2455.89 (557.83 )	1693.89	3670.04
State child care subsidy spending	489.37 (180.68)	282.48	1080.55
State help locate care	73.91	0	1
State limit in-home care	34.95	0	1

Table 2. State Child Care Subsidy and TANF policies for the 18 cities (2002)

City/state	State TANF eligibility	State TANF benefit	State child care subsidy eligibility	State child care subsidy spending	State help locate	State limit use of home care
Boston* MA	670.29	585.08	2285.48	1080.55	Y	Y
Baltimore*, MD	567.11	453.69	2207.89	447.1	N	N
Chicago* IL	466.23	379.89	1988.69	356.53	N	Y
Corpus Christi*, TX	385.07	199.74	3139.61	282.48	N	Y
Detroit, MI	742.2	440.14	1995.51	572.10	Y	N
Jacksonville* FL	377.36	290.94	2039.94	516.67	N	Y
Indianapolis*IN	363.59	277.02	1838.17	423.69	N	Y
Pittsburgh* PA	639.51	380.68	2352.73	483.10	Y	Y
Philadelphia*PA	639.51	380.68	2352.73	483.10	Y	Y
Milwaukee, WI	1384.42	603.76	2215.07	864.50	N	Y
Nashville*, TN	966.10	177.31	2099.92	594.58	Y	Y

Table 2 (cont.)

Norfolk* VA	1200.02	306.72	3670.04	338.57	Y	Y
Newark, NJ	611.80	407.86	2300.47	344.78	N	Y
New York * NY	637.07	551.11	2378.75	402.07	N	N
Richmond* VA	1200.02	306.72	3670.04	338.57	Y	Y
San Antonio* TX	385.07	199.74	3139.61	282.48	N	Y
San Jose * CA	916.91	656.03	2826.08	618.53	N	Y
Toledo* OH	941.32	358.28	1693.89	593.38	N	N
National mean, SD	742.37 (318.29)	404.11 (134.97)	2455.89 (557.80)	489.37 (180.68)	34.95	73.91

### Bivariate Analysis

Table 3 presents the bivariate analysis for each independent variable and the dependent child care type variable. Contingency tables were used to identify whether the variables were significantly related to the child care arrangements before controlling for other factors.

Continuous variables were categorized into quantiles so that contingency tables could be made between such variables and the child care arrangements.

Chi-square test confirmed that primary child care arrangement type was significantly associated with indicators of mother's socioeconomic status (educational attainment, poverty status), household characteristics (relationship status, child's grandmother at home), work schedules, child's monthly age, and whether the child has a low birth weight. For example, mothers working at nonstandard hours were less likely to use center care than mothers who were working at standard working hours (46.30% vs 56.46%); mothers who had poor education level (less than high school) were less likely to use center care than those with more than high school education (44.79% vs 50.49%); Married mothers were less likely to use center care than single mothers (44.36% vs 55.18%). The bi-variate analysis also found that African American mothers were more likely to use center care than white mothers (61.17% vs 44.21%), and Hispanic mothers were more likely to use relative care than white mothers (47.62% vs 30.56%); in



addition, mothers who had grandparent(s) at home were more likely to use relative care than mothers who did not have grandparent(s) at home (45.73% vs 32.45%); mothers who had household income more than 200% of the FPL were less likely to use family day care than those who had household income less than 100% of the FPL (19.76% vs 9.11%). Chi-square tests did not find significant associations between primary child care arrangement and the length and mother's work hours and child's gender.

Table 3 Bivariate Analysis of Mothers' Individual Characteristics (N=1,445)

Variable	Child care center	Relative care	Family day care	Sig
Care type	51.14	34.58	14.28	
Work hour				p=0.344
1 <sup>st</sup> quantile	48.84	35.19	15.97	
2 <sup>nd</sup> quantile	51.86	35.37	12.77	
3 <sup>rd</sup> quantile	52.87	31.42	15.71	
Work schedule ***				
Non standard	46.30	40.74	12.96	p<0.0001
Standard	56.46	27.87	15.67	
Whether grandparent(s) at home ***				
Yes	47.86	45.73	6.41	p=0.0003
No	51.78	32.45	15.77	
Education ***				p<0.0001
< high school	44.79	45.83	9.38	
High school	50.21	38.49	11.30	
> high school	50.49	27.10	18.41	
Race ***				p<0.0001
African American	61.17	30.39	8.44	
Hispanic	34.69	47.62	17.69	
White	44.21	30.56	25.22	
Other	38.64	52.27	9.09	
Income***				p<0.0001
< 100% FPL	52.71	38.18	9.11	
100-200% FPL	48.67	41.22	10.11	
> 200% FPL	51.58	28.66	19.76	
Marriage status ***				p<0.0001
Married	44.36	33.09	22.54	
Cohabit	50.00	37.11	12.89	
Neither	55.18	34.59	10.23	

Table 3. (cont.)

Child' gender				
Boy	52.58	32.72	14.70	p=0.320
Girl	49.57	13.77	36.67	
Whether child had low birth weight **				
Yes	54.89	39.10	6.02	p= 0.037
No	50.76	34.15	15.09	
Child age **				p=0.009
1 <sup>st</sup> quantile	47.91	35.09	17.00	
2 <sup>nd</sup> quantile	48.25	34.65	17.11	
3 <sup>rd</sup> quantile	54.98	33.95	11.07	
4 <sup>th</sup> quantile	56.86	34.11	9.03	

Table 4. Bivariate Analysis of Mothers' Neighborhood Characteristics (N=1,445)

Variable	Child care center	Relative care	Family day care	Sig
Percent of Poverty ***				p<.0001
1 <sup>st</sup> quantile	55.68	23.82	20.50	
2 <sup>nd</sup> quantile	46.67	39.72	13.61	
3 <sup>rd</sup> quantile	51.79	36.36	11.85	
4 <sup>th</sup> quantile	50.42	38.50	11.08	
Percent of Immigrant***				p<.0001
1 <sup>st</sup> quantile	54.29	35.46	10.25	
2 <sup>nd</sup> quantile	55.83	31.67	12.50	
3 <sup>rd</sup> quantile	54.14	31.22	14.64	
4 <sup>th</sup> quantile	40.33	40.06	19.61	
Percent of African American***				p<.0001
1 <sup>st</sup> quantile	43.80	37.19	19.01	
2 <sup>nd</sup> quantile	45.13	33.70	21.17	
3 <sup>rd</sup> quantile	57.58	33.06	9.37	
4 <sup>th</sup> quantile	58.06	34.44	7.50	
Percent of Hispanic***				p<.0001
1 <sup>st</sup> quantile	57.34	33.24	9.42	
2 <sup>nd</sup> quantile	54.85	31.02	14.13	
3 <sup>rd</sup> quantile	55.12	29.36	15.51	
4 <sup>th</sup> quantile	37.29	44.75	17.96	

Table 4 shows that Chi-square tests also found that primary child care arrangement type was significantly associated with indicators of neighborhood racial composition and poverty rate. For example, mothers who lived in poorer neighborhoods (e.g., neighborhood with the fourth quantile of poverty rate) were less likely to use center care and more likely to use relative care than mothers living in better neighborhoods (e.g., neighborhoods with the first quantile of poverty rate); mothers who lived in neighborhoods with more immigrants were less likely to use center care and more likely to use family day care; mothers in neighborhoods with more African American were more likely to use center care; and mothers in neighborhoods with more Hispanic were less likely to use center care but were more likely to use relative care and family day care.

Table 5. Bivariate Analysis of Mothers' State Policy Level Factors (N=1,445)

Variable	Child care center	Relative care	Family day care	Sig
State TANF eligibility ***				p=0.0002
1 <sup>st</sup> quantile	51.28	35.53	13.19	
2 <sup>nd</sup> quantile	47.17	36.12	16.71	
3 <sup>rd</sup> quantile	44.12	42.65	13.24	
4 <sup>th</sup> quantile	61.14	25.00	13.86	
State TANF benefit				p=0.1260
1 <sup>st</sup> quantile	52.39	33.27	14.34	
2 <sup>nd</sup> quantile	53.81	35.17	11.02	
3 <sup>rd</sup> quantile	47.34	39.50	13.17	
4 <sup>th</sup> quantile	51.43	31.14	17.43	
State CCDF eligibility **				p=0.0099
1 <sup>st</sup> quantile	49.18	36.61	14.21	
2 <sup>nd</sup> quantile	58.92	29.57	11.51	
3 <sup>rd</sup> quantile	45.88	37.35	16.76	
4 <sup>th</sup> quantile	47.97	36.49	15.54	
State CCDF spending **				p=0.0015
1 <sup>st</sup> quantile	46.49	38.01	15.50	
2 <sup>nd</sup> quantile	49.74	31.63	18.62	
3 <sup>rd</sup> quantile	52.38	38.10	9.52	
4 <sup>th</sup> quantile	57.54	30.46	12.00	
Whether state helped to locate child care **				p=0.033
Yes	55.05	33.47	11.49	
No	49.04	35.21	15.74	

Table 5. (cont.)

Whether state limits in-home care **	p=0.006		
Yes	53.28	33.90	12.83
No	45.09	36.60	18.30

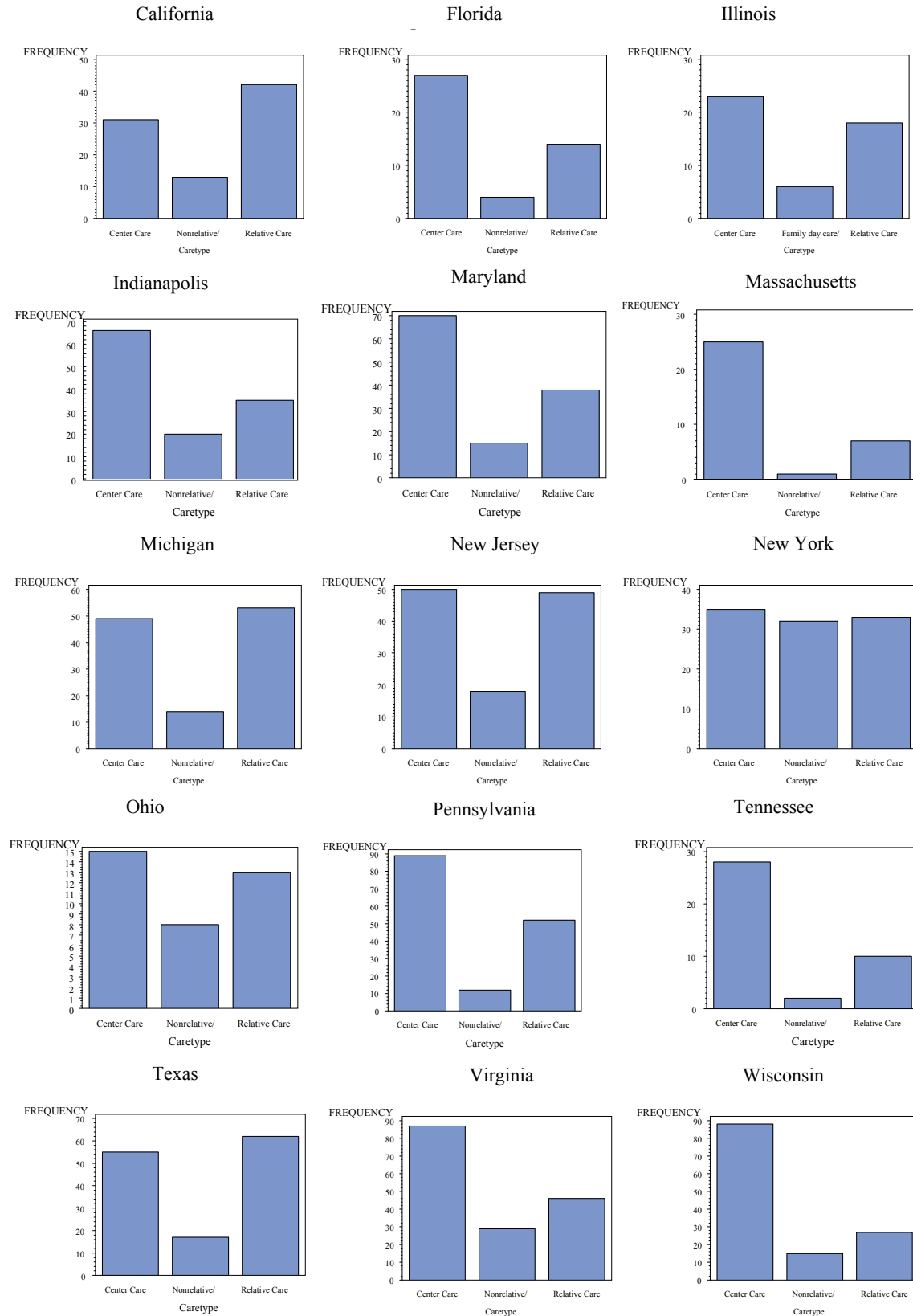
Table 5 shows that at the state level, child care arrangements were associated with state child care subsidy eligibility, child care subsidy spending, and TANF eligibility. Mothers in states with higher child care subsidy spending were more likely to use center care and less likely to use relative care and family day care; mothers in states with stricter child care subsidy eligibility levels were less likely to use center care, and more likely to use relative care and family day care; mothers in states with stricter TANF eligibility were more likely to use center care, and less likely to use relative care and family day care. Chi-square tests also showed that in states where state child care agencies helped to locate child care for parents, mothers were more likely to choose center care and less likely to use relative care and family day care; and in states where child care agencies put limitations on the use of in-home care, mothers were more likely to use center care and less likely to use family day care.

Taken together, these bi-variate relationships suggested a picture of the variables that are associated with primary child care arrangement type of disadvantaged working mothers. The results showed that low-income working mother's child care arrangement decision is associated with individual level factors, neighborhood characteristics, and state welfare policy characteristics.

Additional Chi-square tests also found that there was cross state variation between child care arrangement choices of low-income working mothers ( $p < 0.0001$ ). This relationship was further illustrated in Figure 1, in which bar charts showed between state variations in child care

arrangement decisions of the working mothers in the sample. As previously noted for all states, 51% of mothers relied on center care, 14% relied on non-relative family day care, and 34% relied on relative care. However, center care use varied from as low as 35% in New York to as high as 75% in Massachusetts. The use of family day care ranged from a low of 3% in Massachusetts to as high as 32% in New York, and the use of relative care ranged from 21% in Wisconsin to 49% in California.

Figure 1. State Variation on Mothers' Child Care Arrangements



## **Multivariate Analysis**

Table 6 presents estimates from four multilevel multinomial logistic regression models of child care choices. Model 1 included no covariates, but state random effects. Model 2 included the mother and child individual level (socio-demographic) characteristics, while Model 3 incorporated the socio-demographic characteristics as well as neighborhood measures; finally, Model 4 included mothers' socio demographic characteristics, neighborhood characteristics, and state child care subsidy characteristics. In Table 6, the first four columns of numbers compared relative care to center care across the four models, and then the second set compared family day care to center care

The between-state variance from each model was firstly presented to show how the difference between choices of child care among states were explained by adding sets of variables (individual variables, neighborhood variables, and policy variables). Then -2 Log Likelihood, AIC, and BIC were presented as measures of the fit statistics of the estimated statistical models. Table 6 also presented a set of coefficient and standard errors from the models estimating the effects of different factors on mothers' child care arrangements.

### **Comparisons between Relative Care and Center Care**

The baseline model (Model 1) results indicated choices between relative care and center care varied across states significantly (random intercept = 0.123). Model 2 added a block of socio-demographic variables of the working mothers. As shown in Model 2, several socio-demographic predictors of mothers' choice among relative care and center care were statistically significant. Results suggested that household composition characteristics were associated with working mothers' child care choices. Single mothers were more likely to rely on center care than relative care than mothers who were married ( $\beta=-0.491$ ,  $p=0.004$ ), and mothers who had a

grandparent living with them were more likely to choose relative care than center care ( $\beta=0.342$ ,  $p=0.040$ ). Racial and ethnic characteristics also were related to choice, with black mothers more likely to rely on center care than white mothers ( $\beta=-0.540$ ,  $p=0.002$ ). In contrast, Hispanic mothers were more likely to rely on relative care than center care when compared to white mothers ( $\beta=0.411$ ,  $p=0.050$ ), and Asian and other racial and ethnic minorities approached significance in this respect ( $\beta=0.671$ ,  $p=0.070$ ). Educational attainment also was related to the choice of center versus relative care. Mothers with less than a high school education ( $\beta=0.520$ ;  $p=0.004$ ) or who only had a high school diploma ( $\beta=0.405$ ;  $p=0.006$ ) were more likely to choose relative child care than center care, when compared with mothers who had more than high school education.

The relations between income level and choice of center versus relative care were less straightforward. On the one hand, mothers who had household income between 100 to 200% of the federal poverty line were more likely to choose relative care than mothers whose income were above 200% of the FPL line ( $\beta=0.402$ ,  $p=0.040$ ). However, mothers with incomes below the poverty line were not significantly different than the higher income mothers in terms of choosing relative care or center care.

Findings related to mothers' employment characteristics varied. Most notably, mothers who worked in the evening, during night or weekends were significantly more likely to rely on relative than center care ( $\beta=0.521$ ,  $p<0.0001$ ). However, the number of hours that mothers work per week was not significantly related to choosing relative versus center care.

Finally, the monthly age of the child was significantly associated with mother's decisions to choose center or relative care. Mothers were more likely to rely on relative care than center care for their younger children than older children ( $\beta=-0.084$ ,  $p=0.005$ ). The other children's



characteristics included in the model - gender and whether child had a low birth weight- were not significantly related to such choices.

Collectively, the socio-demographic measures in Model 2 reduced the between-city variance from 0.123 in the null model in a model without covariates to 0.086. Thus, most of the observed between-city variance in child care decision-making between relative care and center care was not explained by differences in the characteristics of mothers or their children.

Model 3 added the block of neighborhood variables in addition to the individual-level characteristics. After adding the neighborhood variables, all except one (Hispanic) of the individual characteristics remained significant, although the coefficient estimates of these variables changed. In Model 3, neighborhood poverty rate was the only neighborhood level variables found to be significantly associated with mothers' choices between relative and center care. Mothers who lived in neighborhoods with higher percentages of people under the FPL were more likely to rely on relative care than center care ( $\beta=1.633$ ,  $p=0.008$ ). Neighborhood percentages of African American, Hispanics, and immigrants were not found to be significantly associated with these choices. Model 3 showed that by adding neighborhood variables, the between state variation increased from 0.086 to 0.090.

Model 4 added state level CCDF and TANF policy variables. These included state child care subsidy eligibility, state child care subsidy spending, whether the state helps to locate child care for parents, whether the state places any limitations on use of in-home care, state TANF eligibility levels, and state TANF benefit levels. After adding the block of state policy variables, the individual and neighborhood predictors remained significant, although the coefficient estimates of these variables changed.

The estimated effects of state CCDF variables suggested that the generosity of state child care subsidy policies were positively associated with the likelihood that working mothers with a 3-years-old chose a child care center rather than relative child care. After controlling for individual and neighborhood characteristics, the result showed that child care subsidy eligibility level was not significantly associated with mothers' choice between relative care and center care. But the result did show that the generosity of state child care subsidy spending was significantly related to choosing center care versus relative care. That is, in states with more generous subsidy spending, children were more likely to attend center care than relative care ( $\beta=-0.002$ ,  $p=0.001$ )<sup>6</sup>; in states where child care lead agencies help parents to locate child care, mothers also were more likely to place their children in center care rather than relative care ( $\beta=-0.312$ ,  $p=0.002$ ). Whether the state has limitation on use of in-home care had no effect on choice between relative care and center care. The model showed no significant association between state TANF eligibility and benefit levels and child care choices between center care and relative care.

After adding the block of state policy variables, the between-city variance for choice between relative care and center care reduced from 0.090 to zero, which indicated that the selected state policy variables explained most of the between state variance (i.e., the variance on child care choices between different states). In other words, they accounted for most of the observed variation across states.

### **Comparisons between Family Day Care and Center Care**

When looking at the choices between family day care and center care, Model 2 showed that single mothers were more likely than married mothers to rely on center care rather than

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<sup>6</sup> Odds ratio equals to .998, that is, an increase of each one hundred dollars in state child care subsidy spending increase the likelihood of choosing center care by 18.2% (.998 to the power of 100 = 0.818)

family day care ( $\beta=-0.531$ ,  $p=0.016$ ) cohabitating mothers approach significance in this respect when compared to married mothers ( $\beta=-0.413$ ;  $p=0.070$ ).

Mothers who had grandparents living with them were more likely to choose family day care than center care ( $\beta=0.781$ ,  $p=0.009$ ). Racial and ethnic effects again were significant, with African American mothers more likely than their white counterparts to rely on center care than on family day care ( $\beta=-1.393$ ,  $p<0.0001$ ). Asian and other ethnic mothers approach significance in terms of being more likely than white mothers to rely on center care rather than family day care ( $\beta=-1.020$ ,  $p=0.090$ ). Mothers who worked in the evening, during night or weekends were marginally more likely to rely on family day care than center care ( $\beta=0.248$ ,  $p=0.080$ ).

Mothers with younger children were more likely to use family day care ( $\beta=-0.107$ ,  $p=0.013$ ). Different from the relationship between center care and relative care, mothers who had a child who had a low birth weight were more likely than those whose children did not have a low-birth weight to choose family day care rather than center care ( $\beta=0.910$ ,  $p=0.020$ ).

Model 3 added the block of neighborhood variables in addition to the individual-level characteristics. After adding the blocks of neighborhood variables, the individual variables that were significant in Model 2 remained significant, although the coefficient estimates change. As the block of neighborhood variables, two were significantly related to choices of family day care versus center care. Mothers living in neighborhoods with higher percentages of immigrants were more likely to rely on family day care than center care ( $\beta=2.880$ ,  $p=0.010$ ). Similarly, mothers who live in neighborhoods with higher poverty rates were more likely to rely on family day care than center care ( $\beta=1.643$ ,  $p=0.079$ ).

Model 4 added a block of state policy variables. The individual level and neighborhood variables that were significant in previous models remain significant, although the coefficient

estimates change. The results showed that after controlling individual characteristics and neighborhood characteristics, state child care subsidy spending had significant effects on choices between center care vs. family day care. Children were more likely to attend center care than family day care in states with more generous child care subsidy spending ( $\beta = -0.003$ ,  $p = 0.002$ )<sup>7</sup>. Further, in states where child care agencies place limitations on use of in-home care, mothers were less likely to place their children in family day care than center care ( $\beta = 0.658$ ,  $p = 0.022$ ). Last, children were more likely to attend family day care than center care than states with more stringent TANF eligibility ( $\beta = 0.001$ ,  $p = 0.001$ )<sup>8</sup>.

After adding the block of state policy variables, the between-city variance for choice between family day care and center care reduced from 0.181 to zero, which indicated that the selected state policy variables explained most of the between state variance. In other words, they accounted for most of the observed variation in child care choices across states.

Table 6 also provides AIC values as the main criteria for model fit statistics. The smaller AIC, the better is the model fit statistics. In the analyses, AIC values decreased as blocks of individual, neighborhood, and policy variables were added. Model 4 had the smallest AIC value and therefore had the best model fit statistics of the four<sup>9</sup>.

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<sup>7</sup> Odds ratio equals to .997, that is, an increase of each one hundred dollars in state child care subsidy spending increase the likelihood of choosing center care than family day care by 26% (.997 to the power of 100 = 0.740)

<sup>8</sup> Odds ratio equals to 1.001, that is, an increase of each one hundred dollars in state TANF eligibility increase the likelihood of choosing family day care than center care by 10.5% (1.001 to the power of 100 = 1.105).

<sup>9</sup> Additional analyses shows that when comparing choices between relative care and family day care, Asian and other ethnic mothers were more likely than their white counterparts to use relative care than family day care, mothers with less than high school education were more likely to rely on relative care than family day care, in addition, mothers with grandparents at home were more likely to rely on relative care than family day care; neighborhood social demographic characteristics have no effect on choice between relative care and family day care; mothers in states with generous TANF benefit are more likely to use family day care than center care.

Table 6. Multivariate Analysis of Factors Influencing Child Care Arrangement (N=1,445)<sup>10</sup>

	Model 1 Null model	Model 2 Relative Care vs. Center Care	Model 3 Relative Care vs. Center Care	Model 4 Relative Care vs. Center Care	Model 1 Null model	Model 2 Family Day care vs. Center Care	Model 3 Family Day care vs. Center Care	Model 4 Family Day care vs. Center Care
-2 log likelihood	2824.59	2610.18	2592.57	2551.93	2824.59	2610.18	2592.57	2551.93
AIC	2832.59	2670.18	2668.57	2649.93	2832.59	2670.18	2668.57	2649.93
BIC	2835.42	2691.42	2695.48	2684.62	2835.42	2691.42	2695.48	2684.62
Random Intercept	0.123 (0.065)	0.086 (0.053)	0.096 (0.058)	0.0	0.197 (0.118)	0.211 (0.128)	0.181 (0.122)	0.0
Fixed Intercept	-0.411*** (0.111)	3.586** (1.087)	2.290 (1.67)	4.197** (1.94)	-1.347*** (0.147)	1.820 (1.594)	-0.83 (2.27)	2.545 (2.75)
Marriage Cohabit		-0.234 (0.191)	-0.271 (0.196)	-0.297 (0.196)		-0.413+ (0.260)	-0.472+ (0.261)	-0.495+ (0.206)
Neither		-0.491** (0.169)	-0.522** (0.171)	-0.553** (0.171)		-0.531* (0.218)	-0.562* (0.221)	-0.572** (0.222)
Grandparent(s) at home		0.342* (0.161)	0.373* (0.165)	0.371* (0.165)		0.781** (0.30)	0.824** (0.308)	0.796** (0.307)
Race								
Black		-0.540** (0.170)	-0.451* (0.213)	-0.469* (0.213)		-1.393*** (0.224)	-1.182*** (0.277)	-1.204*** (0.281)
Hispanic		0.411* (0.210)	0.326 (0.241)	0.371 (0.247)		-0.072 (0.266)	-0.291 (0.30)	-0.313 (0.274)
Other		0.671+ (0.362)	0.774+ (0.394)	0.788* (0.39)		-1.020+ (0.591)	-1.031+ (0.629)	-1.042+ (0.633)
Education								
High school		0.405** (0.148)	0.377* (0.150)	0.389** (0.149)		-0.057 (0.207)	-0.065 (0.210)	-0.087 (0.210)
< High school		0.52*** (0.177)	0.457** (0.179)	0.479** (0.178)		-0.220 (0.268)	-0.310 (0.274)	-0.275 (0.276)

<sup>10</sup> The table reports coefficient estimates, standard errors (in the parentheses), and p-values.

Table 6. (cont.)

<b>Income</b>						
100-200% FPL	0.402*	0.377*	0.395*	-0.241	-0.250	-0.238
	(0.163)	(0.164)	(0.164)	(0.235)	(0.237)	(0.237)
<100% FPL	0.174	0.130	0.139	-0.181	-0.213	-0.197
	(0.179)	(0.182)	(0.182)	(0.263)	(0.267)	(0.267)
Nonstandard work schedules	0.521***	0.545***	0.544***	0.248+	0.289+	0.295+
	(0.127)	(0.127)	(0.128)	(0.173)	(0.174)	(0.174)
Work hour	0.003	0.004	0.003	0.007	0.009	0.007
	(0.006)	(0.006)	(0.006)	(0.008)	(0.008)	(0.009)
Child's monthly age	-0.084**	-0.081**	-0.085**	-0.107*	-0.091*	-0.102*
	(0.029)	(0.029)	(0.029)	(0.043)	(0.042)	(0.042)
Child had low birth weight	-0.023	-0.041	-0.074	0.910*	0.850*	0.772*
	(0.205)	(0.207)	(0.207)	(0.393)	(0.397)	(0.390)
Child is a boy	-0.176	-0.181	-0.174	0.025	0.013	0.032
	(0.12)	(0.124)	(0.123)	(0.16)	(0.169)	(0.169)
<b>Neighborhood</b>						
Percent of Poverty		1.633**	1.379*		1.643+	1.574*
		(0.611)	(0.625)		(0.93)	(0.917)
Percent of African American		0.823	-0.482		1.351	-0.778
		(1.24)	(1.228)		(1.61)	(1.652)
Percent of Hispanic		1.113	-0.142		1.812	-0.336
		(1.15)	(1.141)		(1.47)	(0.657)
Percent of Immigrant		0.991	0.004		2.880*	1.629+
		(0.90)	(0.699)		(1.137)	(0.863)
<b>Welfare policy</b>						
Child care subsidy spending			-0.002**			-0.003***
			(0.001)			(0.001)
Child care subsidy eligibility			-0.0006			-0.0003
			(0.001)			(0.002)
Help locate care			-0.312+			-0.103
			(0.173)			(0.246)
Limit in-home care			-0.023			0.658*
			(0.208)			(0.288)

Table 6. (Cont.)

TANF eligibility	-0.0002 (0.0003)	0.0007** (0.001)
TANF benefit	0.004 (0.02)	0.002 (0.002)

## **CHAPTER 9**

### **DISCUSSION**

The current study is among the first to use an ecological framework to examine how individual, neighborhood, and state policies influence the child care arrangements chosen by working mothers. Estimates of the effects of these predictors indicated that factors at each level were associated with child care decisions, which therefore support some of the influences on decision making hypothesized by the Pungello and Kurtz-Costes' (1999) model. The findings also showed that these child care decisions varied across states, and that state policies were important in understanding such cross-state variations. The following discussion considers the most important of these findings, and interprets them more broadly in the context of related previous research.

#### **Individual Level Factors**

First of all, when examining individual level factors, the study finding that single mothers were more likely than married mothers to rely on center care than relative care or family day care is consistent with prior research. This may be partly because married mothers were more likely to live with or near family members, who can provide a relatively inexpensive and convenient source of care (Hogan & Kitagawa, 1985; Johansen et al., 1996; McAdoo, 1997).

As would be expected, the findings also showed that mothers living with grandparents were more likely to rely on relative care than center care. This is consistent with previous studies that have found that grandparents have been providing important child care to their low-income adults as these adults struggle to maintain employment (Anderson et al., 2005; Bromer & Henly, 2004; Henly & Lyons, 2000). Such families also relied more on family day care than center care, and the reasons for this are less clear. It is conceivable that the presence of grandparents allowed



these families to more easily blend some relative caregiving with other less formal means of child care provision, but further research would be needed to test this hypothesis.

Mothers with less education (high school diploma only or less) were more likely to rely on relative care than mothers with higher levels of education. This relationship may be rooted in the association between mothers' educational attainment and their weighting of various attributes of child care arrangements. For example, previous studies have shown that developmental characteristics are more salient to better-educated mothers, while relational characteristics such as knowing the provider are more highly valued by less-educated mothers (Johansen et al., 1996).

The findings with respect to race and ethnicity varied considerably depending on the specific group in question, and suggested that the effects of racial factors on decision-making may be fairly complex. The significantly higher likelihood that black mothers were more likely than white mothers to rely on center care appears to contradict findings from some earlier studies (e.g., Early & Burchinal, 2001). However, it is consistent with other research that has reported a recent decline in kin care usage among African American families (Brewster & Padavic, 2002; Radey & Brewster, 2007).

In contrast, as is consistent with previous studies, Hispanic mothers were more likely to choose relative care than center care (Fuller, Holloway, Liang, Rambaus, & Eggers-Pierola, 1996; Fuller, Holloway, & Liang, 1996; Honig, 2002; Radey & Brewser, 2007). Several factors may be useful in understanding this different pattern for Hispanic mothers. For one thing, they may be less likely to receive child care subsidies that provide necessary resources to obtain center care, due to issues such as their immigration status or linguistic or cultural barriers that inhibit their willingness to approach formal agencies for assistance (Anderson et al., 2005). They

may also prefer relative care or family day care because of their cultural preference. For example, Uttal (1996) speculated that minority parents may prefer to choose relative care because they believe that it protects children from being seen as “different” in a predominantly white world, or because it helps to reinforce their cultural identification. Hispanic mothers may also choose relative care or family day care because of a lack of culturally sensitive or bi-lingual services for their children in formal care settings. The findings from the Growing Up in Poverty (GUP) study may support this argument. In the GUP study, researchers found that members of language minority groups (Latinas and Vietnamese Americans) were less likely to select center based care (Fuller, Holloway, & Liang, 1996).

The effects of income on the choice of child care arrangements likewise appeared fairly complex. Mothers with income between 100-200% of the FPL were more likely than mothers with income more than 200% of the FPL to rely on relative care than center care. However, these differences were not found between those with incomes above 200% of the FPL and those in the lowest income category (less than 100% of FPL). It may be that mothers with incomes of more than 200% of FPL had more purchasing power than those who had income between 100-200%, and therefore were more like to decide to purchase center care. At the same time, mothers who had income less than 100% of the FPL were more likely to qualify for child care subsidies, both based on their income and as a specific target group if they receive TANF benefits. Qualification for subsidies in turn is important in providing the financial resources needed to purchase more expensive subsidy care. The current study does not allow analysis of these possibilities, but further research that can untangle the effects of subsidy receipt and eligibility levels, TANF receipt, and income is needed to more clearly understand how income may affect these choices.

As has been suggested by previous research, work structure also appears to be important in decision-making concerning child care arrangements. In particular, mothers had nonstandard work schedules were significantly more likely to choose relative care than center care. This may have to do with the child care resources available to them during the nonstandard working hours. For example, it is known that the supply of center-based care is scarce during nonstandard hours, and thus parents are likely to face constrained choices for child care during those hours (Anderson et al., 2003). Furthermore, studies have found that persons with low skills and poor educations are more likely to work in jobs requiring nonstandard hours, and that this is particularly true among former welfare and low-income families (Lopreset, 1999; Schumacher & Creenberg, 1999). It therefore may be that these families where mothers work nonstandard schedules also had financial constraints that favor the selection of relative care.

Although the age range of children in this sample varied only from 32 to 50 months, the mothers of children within this truncated age range were significantly more likely to choose relative care or family day care for young children. This is consistent with previous research indicating that mothers of young children often prefer relative care, then shift care of children to centers as they reach pre-school age (Fuller & Kagan, 2000; Fuller, Kagan, & Loeb, 2002). Pungello & Kurtz-Costes (1999) have used such findings to illustrate that maternal beliefs influence maternal selection behavior – a mother may believe that different settings, as in home based versus center-based care, are more appropriate for an infant than an older child.

### **Neighborhood Factors**

The finding showed that in poor neighborhoods, mothers were more likely to use relative care or family day care than center care. Several explanations for this phenomenon are plausible. First of all, the lack of child care centers in poor neighborhoods may be at least partially

responsible. This explanation is consistent with the social disorganization (SD) theory developed by Shaw and Mckay (1942), which states that neighborhoods having higher rates of poverty and ethnic heterogeneity are deprived of important institutional resources such as child care centers. . For example, Ellen and Turner (2003) suggested that services and institutions whose availability and quality vary across neighborhoods may have a significant impact on individual outcomes, and their examples include the relative presence of child care centers. Further research can usefully clarify how the supply of child care centers varies in neighborhoods with varying poverty rates and income distributions.

It also may be the case that in poor neighborhoods, the quality of child care centers is poor or parents perceive the quality is poor. For example, they may have greater safety or health issues. Therefore, mothers in such neighborhoods may not feel safe or trust placing their children in such care settings, and choose relative care or home based care instead. Anderson, Ramsburg, and Scott (2003) have presented some findings in this respect based on focus groups with parents in low-income neighborhoods, but additional research with larger data sets would be useful to test this proposition.

The finding that mothers in immigrant neighborhoods were less likely to rely on center care than family day care also is consistent with social disorganization theory. This is also consistent with previous studies on individual-level factors that immigrant families, especially low-income immigrants, are less likely to use center-based child care than U.S.-born children (Nord & Griffin, 1998). For example, Mexican, Asian, and Hispanic families are less likely to use center-based child care. If at the individual level, immigrants are found to be less likely to use center-based care, then it is not surprising to find that in immigrant neighborhoods mothers are less likely to use center care. This may be due to the intent of protecting the children from

being seen as “different” in a predominantly white world or helps to reinforce their cultural identification, or due to the lack of cultural sensitive or bi-lingual services in the child care centers in their neighborhoods. For the immigrant population, if child care centers cannot be easily accessed from close neighborhoods, reliance on family based care may be a response to such constraints.

Another possible explanation for immigrants might be that they are less likely to have family members present as caregivers in their communities (e.g., grandma is still back in the home country). However, they may still want more informal care. In such a case, more informal family day care providers may emerge in the immigrant neighborhoods to meet these needs, given the low supply of centers or reluctance to use centers.

It is also important to note that although not showed significant in the multivariate analysis, in the bivariate analyses, neighborhood race/ethnicity compositions were significantly associated with child care arrangement. Mothers in neighborhoods with higher percentage of Hispanic people were more likely to use relative care and family day care than center care. As stated earlier in this chapter, this is probably due to the lack of cultural sensitive or bi-lingual services in the formal care settings in the close neighborhoods, but also can be because of the unavailability of child care centers in such neighborhoods.

### **State Policy Factors**

The findings on the effects of specific state policies identified here are consistent with those of pre-welfare reform studies in terms of directions of effects and statistical significance levels (Crosby et al., 2005; Gennetian et al., 2002; Robins, 2007). First of all, adding state policy variables explained most of the state-level variance in the types of care utilized. This showed that

state child care subsidy and TANF policies played an important role in shaping the distribution of child care types used by low-income working mothers.

More specifically, the findings suggested that monetary policy variables were associated with types of care used in several ways. First of all, relatively generous child care spending was positively related to mothers choosing center care than relative care and family day care; generous TANF eligibility was positively related to mothers choosing center care than family day care. Second, in general, the effect sizes of monetary state welfare policy variables were modest – an increase of each one hundred dollars in state child care subsidy spending increased the likelihood of choosing center care than family day care by 26%; and increased the likelihood of choosing center care by 18.2%; on the other hand, a decrease of each one hundred dollars in state TANF eligibility increased the likelihood of choosing center care than family day care by 10.5%. This modest effect sizes are consistent with the literature on child care access, which finds that mother's individual level characteristics play the largest role in determining the nature of the care that children experience (Shonkoff & Phillips, 2000). The modest effect seems also reasonable when considering the reality that welfare policies were quite indirect policy tools that require governmental policies to filter through a fragmented, mixed, market-driven delivery system (Salamon, 2002). Thirdly, of the monetary policy variables, child care subsidy spending seems to be the one that had significant effects on the choice between both center care and relative care and family day care. Child care subsidy eligibility and TANF benefits, although showed significant in the bivariate analyses, did not show significant result when a set of control variables were added. In addition, although TANF eligibility was found to be significantly associated with the use of center care than family day care, the effect size was only about the half of state child care subsidy spending. One possibility for this phenomenon is that, generous child

care spending meant more direct investment in child care center facilities in the state, and therefore had a more direct effect on the use of child care centers.

The findings showed that states also can influence mothers' child care decisions by other means. For example, in states where child care lead agencies helped parents locate child care, mothers were more likely to use center care than relative care. It is likely that, when states provided assistance with the care seeking process, mothers obtained information about available child care resources that would otherwise have been difficult for them to obtain. In addition, interactions with child care subsidy staff may in some cases involve sharing information on the developmental benefits of center care. Further, in states where child care lead agencies limited the use of in-home care, mothers were more likely to use center care than family day care. This finding indicated that states may significantly influence child care choices through the licensing and other regulations they developed with respect to eligible providers. In this case, state regulations pertaining to in-home care use (minimum allowable number of children in care, minimum health and safety standards, criminal background checks, and orientation or training requirements) were likely to make in-home care settings less available or more expensive to purchase. It is not clear from the data why such regulations did not appear to affect the use of relative care. However, in many states, regulations were waived or were less stringent for relative caregivers than for family day care homes.

## **CHAPTER 10**

### **IMPLICATIONS**

This dissertation contributes to the limited knowledge base concerning factors associated with the choice of child care arrangements by working mothers. As hypothesized by ecological theory, the systematic examination of individual, neighborhood, and state policy factors indicates that all may have important influences on these choices. The following sections present some related policy and practice implications that are consistent with the study findings.

#### **The Generosity of Child Care Policies**

State policies do influence mothers' child care arrangements. In particular, states can influence mothers' choice between relative care and center care through providing more generous subsidy spending per child, as well as generous TANF eligibility levels for working mothers. Such policies appear to have the effect of providing more income to spend on child care centers, which are considerable more expensive than relative caregiving. To the extent to which states wish to promote child care center use due to presumed better developmental outcomes, higher spending levels appear to be one useful policy mechanism.

States also can affect mothers' choice of child care centers through both the client assistance practice they engage in and the regulatory policies they employ. In particular, it appears that having child care staff directly working with mothers to help them locate child care is likely to promote the choice of child care centers. Although not examined in this study, including information on developmental and other important child care outcomes in such interactions likewise may lead to greater use of center care. Regulatory policies such as examined in this study also may affect the relative supply and cost of care between different care arrangements. To the extent that such regulations raise the cost or limit the supply of relative or



family day care in relation to center care, the distribution of choice is likely to move toward center care. Of course, this also arguably constrains the free choice of mothers among care alternatives, but this seems justifiable when public funding is involved.

### **Access to Center Care in Poor and Immigrant Neighborhoods**

The findings that mothers in poor or immigrant neighborhoods were more likely to rely on relative care and family day care than center care has important implications for child care policy and practice. The findings suggested that special efforts may be needed to promote access to child care centers in poor or immigrant neighborhoods. This may involve both the development of greater child care supply in such areas, as well as more direct work with mothers regarding the availability and potential benefits of center care.

State subsidy programs and other governmental agencies can play important roles with respect to the distribution of child care resources in such areas. For example, they may provide more access to formal care in such neighborhood by partnering with the nonprofit sector section in establishing more Head Start programs, or by developing more favorable funding policies to stimulate child care center supply in targeted areas. Head Start has a geographic component through which the federal government can fund Head Start centers if need can be demonstrated in the community (Administration for Children and Families, 2003). State and city governments may also respond by partnering with the nonprofit sector to establish more child care centers in poor or immigrant neighborhoods, through mechanisms such as providing more favorable funding policies or assisting with building access and development.

When increasing child care centers in such neighborhoods, particular attention also should be paid to providing culturally sensitive and bi-lingual services. Strategies such as

recruiting bi-lingual staffs, or cooperating with local ethnic community leaders and institutions, may be helpful in this respect.

State child care lead agencies, which are the local agencies set up to plan and administer subsidized child care provision, can play an important role by assisting mothers in locating qualified formal care or providing referral or consulting services to parents seeking care for their children. Outreach programs, operated either by child care lead agencies or local nonprofit agencies, may be very valuable in these areas. They can be used to educate mothers both about the centers available in the area, as well as the benefits of early childhood development that can be promoted in center care. Especially in immigrant neighborhoods, outreach staff also can help mothers overcome concerns about involvement with unfamiliar service agencies.

Meanwhile, it is important for local child care lead agencies to evaluate and monitor the quality of center care in such neighborhoods. The lack of formal care center use may result at least partially because of the low quality of child care centers in poor or immigrant neighborhoods. Such evaluation and monitoring also needs to consider safety concerns of parents in poor areas, as crime and neighborhood distrust in these areas may be one factor that discourages parents from using center care.

Future research should be conducted to further examine why neighborhoods with higher rates of poverty and immigrants are more likely to choose relative care than center care. Ethnographic data may be collected in such neighborhoods to identify whether it is because of lack of child care centers, actual or perceived poor quality, or the preference of mothers due to cultural and language issues.

## **Improving the Quality of Relative and Family Day Care**

Although quality center care appears to offer important child development advantages that should be supported by public policies, families often choose relative and family day care for other reasons (Anderson et al., 2005). For example, the fact that mothers working nonstandard hours may need relative care that is more flexible in terms of nonstandard hour needs highlights the complexity of many child care choices. In fact, there has been an increasing number of people employed during nonstandard hours since we entered the 21<sup>st</sup> century, especially unmarried women with young children (Han, 2004). Prior analyses (NICHD-SECC, 2002) also indicated that almost 40% of mothers worked nonstandard hours at some point in the first years of their child's life, and more than a third of mothers worked nonstandard hours in the first month of their child's life (Han, 2002). For this population, if the use of relative care among mothers who work nonstandard hours is due to the limited availability of formal child care arrangements at these nonstandard times, then providing a greater availability of formal care arrangements for children whose mothers work nonstandard hours may be one important response. Employers may be encouraged to provide on-site care during nonstandard hours for their employees as a starting point. Governmental subsidies probably would be needed to either provide publicly funded care for children whose mothers work nonstandard hours or to motivate employers to provide care for their employees.

However, even if center cares are more available during nonstandard hours, many parents may be more trusting of relative caregivers during evening and overnight hours, especially in dangerous neighborhoods. For example, a study in Illinois found that in one area, a child care center that had opened to provide care during nonstandard hours was having trouble filling its

slots; parents simply did not want their kids sleeping with strangers at night (Anderson et al., 2003).

The study also found that mothers having younger children, Hispanic, Asian, and other ethnicities, and mothers who live with grandparents are more likely to rely on relative care than center care; and mothers having low-birth weight children are more likely to use family day care than center care. These findings suggested that such types of informal care are an important component in the child care arrangements of working mothers.

A full discussion concerning whether and to what extent public policies and funding should be used to support relatives and other informal caregivers is beyond the scope of this dissertation. Nonetheless, it seems reasonable to offer some public support for such arrangements, because they often appear to reflect reasonable parental choice with respect to the care needs of many working families.

Policy makers should therefore consider working mothers' unique decision-making processes and promote access to quality care in an array of developmentally appropriate settings. As the reliance on non-paternal care increases, mothers need a true choice among high-quality child care arrangements. For example, one way of supporting mothers' reasonable choice on relative care and family day care is through increasing subsidy payment levels for such care providers. Previous studies have found that, although current child care subsidy systems generally include informal care (e.g., relatives) as an option, few families in need received the subsidy due to limited funding availability (Meyers & Heintze, 1999; Meyers, Heintze, & Wolf, 2002). In addition, low reimbursement rates have been widely documented (Meyers & Heintze, 1999). For example, Illinois paid FFN providers only \$9.48 per day per child for full-day care in 2002, and other states also have low payment rates (Anderson et al., 2005).

Therefore, improving payments for relative caregivers appears to be a reasonable first step. Given the close family ties existing in many relative care situations, it is reasonable to assume that a portion of resource enhancements would be passed through to the children in care. For example, with increasing payment levels, grandparents may be able to purchase better food, books, toys, or other resources that support the healthy development of children.

The benefits associated with rate improvements must be demonstrable. One policy direction that is promising in this respect is to systematically link higher payment levels with completion of agreed upon training packages, under the assumption that training can foster child care quality improvements. Some previous studies have found that, while informal providers have low levels of formal child care training, their interest in training receipt is reasonably high (Anderson et al., 2005). To encourage care quality, training for these providers merits increased attention. Training on basic safety and nutrition issues, as well as on strategies to assist young children in learning and with other developmental issues, appears especially important in this respect.

## **CHAPTER 11**

### **LIMITATIONS**

The current study has several limitations that can be usefully addressed through further research. The analyses had to leave out some cases of those who were most disadvantaged (i.e., those who were more likely to have nonstandard work hours, who were more likely to have lower education levels, and who were more likely to be Hispanic) due to their missing values on these variables. However, these most disadvantaged mothers are probably the population that needs to provide information with and support by public policies.

Another important limitation is the lack of explicit data on parental preferences and child care access; the FFCW only includes data on the choices actually made, without background on parental preferences. As suggested by previous studies, parental preference data would shed much needed additional light on mother's choice of arrangements. Future policy efforts would benefit from a better understanding of the child care preferences of disadvantaged parents as well as their perspectives about different types of care. More information concerning their awareness of the child care benefits for which they are eligible, and the adequacy of these benefits in meeting their child care needs, also would be valuable in assessing current public programs and considering alternatives. For example, previous studies indicate that parental beliefs and preferences and related child care seeking behaviors influence the types of care parents choose (De Macro, 2006; Larner, 1996; Pungello & Kurtz-Costes, 1999; Seo, 2003; Van Horn et al., 2001). These studies indicate that perceptions concerning the structural characteristics of child care, child safety, and caregiver characteristics, may influence child care choices. However, the FFCW study does not include questions on parental child care beliefs or preferences, or on child care seeking behaviors.

Previous studies have also suggested that differences in child care selection patterns by mothers are partially explained by differences in the per capita supply of slots in centers and family child care homes in mothers' neighborhoods (e.g., Fuller et al., 2002). However, due to the limited data in the FFCW, this factor could not be included in the analyses presented here. It would be useful for future analyses to consider per capital slot availability together with state subsidy spending and other child care policies, as these factors are likely to interact to affect child care choices.

In addition, this study only included two principal state policies that may be related to child care choices. Other state policies, such as the licensing regulations affecting all types of providers, were not included in the analyses due to difficulty in obtaining and classifying these policy factors. Better data on the comparative costs of center care versus family day care and relative care also would be useful in further examining child care choices. In these respects, this study is limited in providing more comprehensive information regarding how state policies influence mothers' child care type decision, and so can only be regarded as a first step in examining state policy impacts.

This study is based on an entirely urban sample of mothers with young children. It is possible that the determinants of child care decisions are different for mothers who do not live in urban areas or for those who have older children. For example, the results presented here suggest that child care decisions are sensitive to children's age even within the truncated age range considered. Further, it is likely that mothers in rural areas face different supply issues than those in urban areas, and considerations of convenience related to travel to child care may be more prominent. Nonetheless, urban mothers with young children represent an important and policy relevant group, as large cities contribute a disproportionate share of recipients of child

care subsidy and TANF programs. Urban mothers with young children also may be particularly vulnerable to surrounding environments, and the importance of early childhood development makes younger children an especially important group in considering public child care policies and programs (De Marco, 2006).

Finally, this study used ecological theory to assess different levels of constructs' effects (individual, neighborhood, and state policy) on mothers' child care choices. According to ecological model, such different levels of constructs are also hypothesized to interconnect with each other and influence on human's behavior. It is therefore reasonable to assume that such different levels of constructs, i.e., individual level factors, neighborhood factors, and state policy factors should be able to link and interact with one another and affect on mothers' child care arrangements. Due to the length of the dissertation, such interactions were not investigated in this dissertation. Future research on linkages and processes between different levels of constructs and their effects on child care decisions should be conducted to provide valuable information for designing policies and programs for supporting qualified child care arrangements for working mothers.

Despite the above limitations, this is the first study that used large nationally representative data to examine working mothers' child care arrangements under a variety of individual, neighborhood, and state policy variables after the 1996 welfare reform. The study provided important finding regarding the effects from mothers' socioeconomic characteristics, neighborhood racial compositions and poverty rates, as well as the generosity of state policies. The types of care selected by parents were associated with child care quality, and further with children's developmental outcomes, as well as mothers' work performance, such as child care related work disruption. The findings thus may have implications for policy makers, community



organizations, as well as social work practitioners to help disadvantaged working mothers balance work and family obligations in the United States.

## REFERENCES

- Adams, G., & Rohacek, M. (2002). More than a work support? Issues around integrating child development goals into the child care subsidy system. *Early Childhood Research Quarterly*, 17, 418-440.
- Anderson, S., Ramsburg, D., & Rothbaum, B. (2003). *Illinois study of license-exempt care: Interim report*. Washington, D.C.: U. S. Department of Health and Human Services. Administration on Children, Youth, and Families, Child Care Bureau. Retrieved from [http://www.dhs.state.il.us/newsPublications/plansReports/pdfs/dhs\\_planReports\\_isleccir.pdf](http://www.dhs.state.il.us/newsPublications/plansReports/pdfs/dhs_planReports_isleccir.pdf)
- Anderson, S. G., Ramsburg, D. M., & Scott, J. (2005). *Illinois study of license-exempt child care: Final report*. Washington, D.C.: U. S. Department of Health and Human Services. Administration on Children, Youth, and Families, Child Care Bureau. Retrieved from [www.researchconnections.org/location/ccrca7350](http://www.researchconnections.org/location/ccrca7350).
- Atkinson, A. M. (1991). Fathers' participation in day care. *Early Child Development and Care*, 66, 115-126.
- Bean, F., & Tienda, M. (1987). *The Hispanic population of the United States (for the Committee for Research on the 1980 Census)*. NY: Russell Sage Foundation.
- Becker, G. (1981). *A treatise on the family*. Cambridge MA: Harvard University Press.
- Blau, D. (2000). Child care subsidy programs. National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w7806.pdf>
- Blau, D., & Tekin, E. (2001). *The determinants and consequences of child care subsidy receipt by low-income families*. Chicago: Joint Center for Poverty Research. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=288291](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=288291)
- Brandon, P. D. (2004). The child care arrangements of preschool-age children in immigrant families in the United States. *International Migration*, 42, 65-87.
- Bronfenbrenner, U. (1994). Ecological model of human development. In *International Encyclopedia of Education, Vol 3, 2nd. Ed.* Oxford: Elsevier. Reprinted in Gauvain, M. & Cole, M. (Eds), *Readings on the development of children, 2nd Ed.* (1993, pp. 37-43).
- Capizzano J., & Adams, G. (2004). Children in low-income families are less likely to be in center-based child care. *Snapshots of America's Families III*, 16. Washington, D.C.: Urban Institute.
- Caruso, G. (1992). Patterns of maternal employment and child care for a sample of two-year-olds. *Journal of Family Issues*, 13(3), 297-312.

- Casper, L., & Smith, K. (2004). Self-care: Why do parents leave their children unsupervised? *Demography*, 41, 285–301.
- Center for Research on Child Wellbeing (CRCW). (2008). Introduction to the fragile families public use data. Retrieved from [http://www.fragilefamilies.princeton.edu/documentation/core/4waves\\_ff\\_public.pdf](http://www.fragilefamilies.princeton.edu/documentation/core/4waves_ff_public.pdf)
- Child Care Bureau (2003). Child Care and Development Fund Report of State Plans. Retrieved from <http://nccic.acf.hhs.gov/pubs/stateplan2002-03/plan.pdf>
- Coley R.L., Chase-Lansdale, P.L., & Li-Grining, C. P. (2001). *Child care in the era of welfare reform: Quality, choices, and preferences*. Report of Welfare, Children, and Families: A Three-City Study. Baltimore, MD: Johns Hopkins University.
- Connelly, R. (1992). The effect of child care costs on married women's labor force participation. *The Review of Economics and Statistics*, 74, 83–90.
- Crosby, D. A., Gennetian, L. A., & Huston, A. C. (2005). Child care assistance policies can affect the use of center-based care for children in low-income families. *Applied Developmental Science*, 9, 86-106
- De Marco, A. C. (2006). *Child care options and choices for families on welfare in rural northern California counties*. Unpublished dissertation, University of California, Berkeley.
- Early, D., & Burchinal, M. (2001). Early childhood care: Relations with family characteristics and preferred care characteristics. *Early Childhood Research Quarterly*, 16, 475–497.
- Ehrle, J., Adams, G., & Tout, K. (2001). Who's caring for our youngest children: Child care patterns of infants and toddlers. Washington, DC: Urban Institute. Retrieved from [http://www.urban.org/UploadedPDF/310029\\_occ42.pdf](http://www.urban.org/UploadedPDF/310029_occ42.pdf)
- Erdwins, C. J., & Buffardi, L. C. (1994). Different types of day care and their relationship to maternal satisfaction, perceived support, and role conflict. *Child and Youth Care Forum*, 23, 41–54.
- Forry, N. D. (2007). *The impact of child care subsidies on child care problems, child care related work disruptions, and mothers' desire to switch care*. Unpublished dissertation. University of Maryland.
- Fuller, B., Holloway, S., & Liang, X. (1996). Family selection of child-care centers: The influence of household support, ethnicity, and parental practices. *Child Development*, 67, 3320–3337.
- Fuller, B., Holloway, S., Rambaud, M., & Eggers-Pierola, C. (1996). How do mothers choose child care? Alternative cultural models in poor neighborhoods. *Sociology of Education*, 69, 83-104.

- Fuller, B., & Kagan, S. L. (2000). *Remember the children: Mothers balance work and child care under welfare reform*. Growing up in poverty project: Wave 1 Findings, University of California, Berkeley and Yale University. Retrieved from [http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?\\_nfpb=true&\\_ERICEstSearch\\_SearchValue\\_0=ED438924&ERICEstSearch\\_SearchType\\_0=no&accno=ED438924](http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICEstSearch_SearchValue_0=ED438924&ERICEstSearch_SearchType_0=no&accno=ED438924)
- Fuller, B., Kagan, S. L., Caspary, G. L., & Gauthier, C. A. (2002). Welfare reform and child care options for low-income families. *The Future of Children*, 12, 96–119.
- Fuller, B., Kagan, S. L., & Gascue, L. (2001). *Explaining family demand for early education: Household factors and neighborhood organizations*. Berkeley, CA: University of California and New Haven CT: Yale University.
- Fuller, B., Kagan, S. L., & Loeb. (2002). *New lives for poor families? Mothers and young children move through welfare reform* (Executive Summary). Growing up in poverty project: Wave 2 Findings, University of California, Berkeley and Yale University. Retrieved from [http://www.researchforum.org/project\\_printable\\_40.html](http://www.researchforum.org/project_printable_40.html)
- Fuqua, B., & Labensohn, D. (1986). Parents as consumers of child care. *Family Relations*, 35, 295–303.
- Galinsky, E., Howes, C., Kontos, S., & Shinn (1994). *The study of children in family child care and relative care: Highlights of findings*. New York: Families and Work Institute.
- Gennetian, L, Crosby, D, Huston, A. & Lowe, T. (2002). *How child care assistance in welfare and employment programs can support the employment of low-income families*. New York: Manpower Demonstration Research Corporation. Retrieved from <http://www.mdrc.org/publications/375/full.pdf>
- Gornick, J.C., & Meyers, M. (2003). *Families that work: Policies for reconciling parenthood employment*. New York: Russell Sage Foundation.
- Han, W. (2004). Nonstandard work schedules and child care decisions: Evidence from the NICHD study of early child care. *Early Childhood Research Quarterly*, 19, 231–256.
- Hill, S. (1999). *African American children: Socialization and development in families*. Thousand Oaks, CA: Sage.
- Hirshberg, D., & Fuller, B. (2002). *Child care demand and supply under CalWORKs: A look at the early impacts of welfare reform in California from 1998-2000*. Berkeley, CA: University of California, PACE.
- Hofferth, S., Shauman, K., Henke, R., & West, J. (1998). *Characteristics of children's early care and education programs: Data from the 1995 National Household Education Survey*

- (NCES Publication No. 98-128). Washington, D.C.: U.S. Government Printing Office. Retrieved from <http://nces.ed.gov/pubs98/98128.pdf>
- Hofferth, S., & Wissoker, D. (1992). Price, quality, and income in child-care choice. *Journal of Human Resources*, 27, 70–111.
- Hosmer, D. W., & Lemeshow, S. (2002). *Applied logistic regression*. New York: John. Wiley & Sons, Inc.
- Honig, A. S. (2002). Choosing child care for young children. In M. H. Bornstein (Ed.), *Handbook of Parenting*, pp.375-405. Mahwah, NJ: Lawrence Erlbaum Associates.
- Huston, A. C., Chang, Y. E., & Gennetian, L. (2002). Family and individual predictors of child care use by low-income families in different policy contexts. *Early Childhood Research Quarterly*, 17, 441-469.
- Johansen, A., Leibowitz, A., & Waite, L. (1996). The importance of child-care characteristics to choice of care. *Journal of Marriage and the Family*, 58, 759–772.
- Karpilow, K. (1999). *Understanding child care: A primer for policy makers*. Sacramento, CA: Institute for Research on Women and Families. Retrieved from <http://www.ccrwf.org/pdf/childcare.pdf>
- Keefe, S. (1996). The myth of the declining family: Extended family ties among urban Mexican-Americans and Anglo-Americans. In G. Gmelch & W. Zenner (Eds.), *Urban life* (pp. 308–322). Prospect Heights, IL: Wavel and Press.
- Kisker, E., & Ross, C. (1997). Arranging child care. *The Future of Children*, 7, 99-109.
- Larner, M. (1996). Parents' perspectives on quality in early care and education, In: Kagan S. L. and Cohen N. E. (Eds.), *Reinventing early care and education*. San Francisco, CA: Jossey-Bass.
- Leibowitz, A., Waite, L., & Witsberger, C. (1988). Child care for preschoolers: Differences by child's age. *Demography*, 25, 205–220.
- Lemke, R., Witte, A., Queralto, M., & Witt, R. (2000). *Child care and the welfare to work transition*. NBER Working Papers 7583, National Bureau of Economic Research, Inc. Retrieved from <http://www.nber.org/papers/w7583>
- Liang, X., Fuller, B., & Singer, J. (2000). Ethnic differences in child care selection: The influence of family structure, parental practices, and home language. *Early Childhood Research Quarterly*, 15, 357–384.
- Linda (2000). Choices in child care seen to vary widely with state, income. *Education Week*, 19(26), 12-17.

- Loprest, P. (1999). *Families who left welfare: Who are they and how are they doing?* Discussion paper, Urban Institute. Retrieved from <http://www.urban.org/publications/310290.html>
- Lowe, E.D., & Weisner, T. S. (2004). "You have to push it – who's gonna raise your kids?": Situating child care and child care subsidy use in the daily routines of lower income families. *Children and Youth Services Review*, 26, 143-171.
- McAdoo, H. (1997). *Black families (3rd ed.)*. Thousand Oaks, CA: Sage.
- Meyers, M., & Heintze, T. (1999). The performance of the child care subsidy system. *Social Service Review*, 73(1), 37-64.
- Meyers, M., Heintz, T., & Wolf, D. (2002). Child care subsidies and the employment of welfare recipients. *Demography*, 39, 165-179.
- Meyer, B. D., & Rosenbaum, D. T. (2000). Making single mothers work: Recent tax and welfare policy and its effects. *National Tax Journal*, 53, 1027-1062.
- Menard, S. (2002). *Applied logistic regression analysis, 2nd Edition*. Thousand Oaks, CA: Sage Publications. Series: Quantitative Applications in the Social Sciences, No. 106.
- National Child Care Information and Technical Assistance Center. (2005). *Federal and state funding for early care and education*. Retrieved from <http://nccic.acf.hhs.gov/categories/index.cfm?categoryId=3>
- National Institute of Child Health and Human Development Early Child Care Research Network. (2002). Early child care and children's development prior to school entry: Results from the NICHD study of early child care. *American Educational Research Journal*, 39, 133–164.
- National Institute of Child Health and Development Early Child Care Research Network. (2004). Type of child care and children's development at 54 months. *Early Childhood Research Quarterly*, 19, 203-230.
- Nord, C.W., & Griffin, J.A. (1998). Educational profile of 3- to 8-year-old children of immigrants, in D.J. Hernandez (Ed.), *Children of Immigrants: Health, Adjustment and Public Assistance*, Committee on Health and Adjustment of Immigrant Children and Families, Board of Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education, National Academy Press, Washington, DC.
- Presser, H. (2003). *Working in a 24/7 economy*. New York: Russell Sage Foundation. Retrieved from <http://www.cdc.gov/niosh/topics/workschedules/abstracts/presser.html>
- Phillips, D., Howes, C., & Whitebook, M. (1992). The social policy context of child care: Effects on quality. *American Journal of Community Psychology*, 20, 25-51.

- Pungello, E. P., & Kurtz-Costes, B. (1999). Why and how working women choose child care: A review with a focus on infancy. *Developmental Review, 19*, 31-96.
- Pungello, E.P., & Kurtz-Costes, B. (2000). Working women's selection of care for their infants: A prospective study. *Family Relations, 49*(3), 245-255.
- Radey, M., & Brewster, K. (2007). The influence of race/ethnicity on disadvantaged mothers' child care arrangements. *Early Childhood Research Quarterly, 22*, 379-393.
- Raudenbush, W., & Bryk, S. (2002). *Hierarchical linear models: Applications and data analysis methods*. 2<sup>nd</sup> edition. Newbury Park, CA: Sage.
- Reichman, N., Etitler, J., Garfinkel, I., & McLanahan, S. (2001). The fragile families and child wellbeing study: Sample and design. *Children and Youth Services Review, 23*, 303-326.
- Rigby, E., Ryan, R., & Brooks-Gunn, J. (2007). Child care quality in different state policy contexts. *Journal of Policy Analysis and Management, 26*(4), 887-907.
- Riley, L., & Glass, J. (2002). You can't always get what you want - Infant care preferences and use among employed mothers. *Journal of Marriage and the Family, 64*, 2-15.
- Robins, P. (2007). Welfare reform and child care: Evidence from ten experimental welfare-to-work programs, *Evaluation Review, 31*, 440-468.
- Seo, S. (2003). Early child care choices: A theoretical model and research implications. *Early Child Development and Care, 173*(6), 637-650.
- Schumacher, R., & Greenberg, M., (1999). *Child care after leaving welfare: Early evidence from state studies*. Retrieved from [http://www.clasp.org/publications/child\\_care\\_after\\_leaving\\_welfare.pdf](http://www.clasp.org/publications/child_care_after_leaving_welfare.pdf)
- Snijders, T. & Bosker, R. (1999). *Multilevel analysis*. London: Sage Publications.
- Singer, J., Fuller, B., Keiley, M., & Wolf, A. (1998). Early child-care selection: Variation by geographic location, maternal characteristics, and family structure. *Developmental Psychology, 34*, 1129-1144.
- Tekin, E. (2005). Child care subsidy receipt, employment, and child care choice of single mothers. *Economic Letters, 89*, 1-6.
- U.S. Census Bureau. (2005). *Child care arrangements of preschoolers under 5 years old living with mother, by employment status of mother and selected characteristics*. Retrieved from <http://www.census.gov/population/socdemo/child/pp1-2005/tab01B.xls>

- U.S. Department of Health and Human Services. (2007). *Fiscal year 2007 Federal child care appropriations*. Retrieved from [http://www.acf.hhs.gov/programs/ccb/ccdf/approp\\_2007.htm](http://www.acf.hhs.gov/programs/ccb/ccdf/approp_2007.htm)
- U.S. Department of Health and Human Services. (2009). *Temporary caseload data 2008: Total recipients*. Retrieved from [http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/2008/2008\\_recipient\\_tan.htm](http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/2008/2008_recipient_tan.htm)
- Urban Institute (2002). The welfare rules databook: State policies as of July 2002. Retrieved from [http://www.acf.hhs.gov/programs/opre/welfare\\_employ/state\\_tanf/reports/wel\\_rules02/wel02\\_rules.pdf](http://www.acf.hhs.gov/programs/opre/welfare_employ/state_tanf/reports/wel_rules02/wel02_rules.pdf)
- Urban Institute (2004). Snapshots of America's Families III. Retrieved from <http://www.urban.org/publications/310968.html>
- Uttal, L. (1996). Racial safety and cultural maintenance: The childcare concerns of employed mothers of color. *Ethnic Studies Review*, 19, 43–59.
- Van Horn M.L., Mulvihill, B.A., & Newell, W.Y. (2001). Reasons for child care choice and appraisal among low-income mothers. *Child and Youth Care Forum*, 30(4), 231-249.
- Walker, S., & Reschke, K. (2004). Child care use by low income families in rural areas: A contemporary look at the influence of women's work and partner availability. *Journal of Children and Poverty*, 10(2), 149-167.
- Weinraub, M., Shlay, A. B., Harmon, M., & Tran, H. (2005). Subsidizing child care: How child care subsidies affect the child care used by low-income African American families. *Early Childhood Research Quarterly*, 20(4), 373-392.
- White, J. M., & Klein, D. M. (2002). *Family theories*. Thousand Oaks, CA: Sage Publications.
- Wolfe, B., & Scrivner, S. (2004). Child care use and parental desire to switch care type among a low-income population. *Journal of Family and Economic Issues*, 25(2), 139-162.
- Zinzeleta, E., & Little, N. (1997). How do parents really choose early childhood programs? *Young Children*, 52, 8-11.